U.S. ENVIRONMENTAL PROTECTION AGENCY

NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

DISTRIBUTION OF PHYTOPLANKTON IN TENNESSEE LAKES

WORKING PAPER NO. 691

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

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by

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs. The Survey was designed to develop, in conjunction with State environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and State management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

The Survey collected physical, chemical, and biological data from 815 lakes and reservoirs throughout the contiguous United States. To date, the Survey has yielded more than two million data points. In-depth analyses are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes.

INTRODUCTION

The collection and analysis of phytoplankton data were included in the National Eutrophication Survey in an effort to determine relationships between algal characteristics and trophic status of individual lakes.

During spring, summer, and fall of 1973, the Survey sampled 250 lakes in 17 States. Over 700 algal species and varieties were identified and enumerated from the 743 water samples examined.

This report presents the species and abundance of phytoplankton in the 16 lakes sampled in the State of Tennessee (Table 1). The Nygaard's Trophic State (Nygaard 1949), Palmer's Organic Pollution (Palmer 1969), and species diversity and abundance indices are also included.

Table 1. Lakes Sampled in the State of Tennessee

STORET #	LAKE NAME	COUNTY
4701	Barkley Lake	Stewart, Montgomery (Trigg, Lyon in KY)
4704	Boone Reservoir	Washington, Sullivan, Carter
4706	Cheatham Reservoir	Cheatham, Davidson
4707	Cherokee Lake	Jefferson, Hamblen, Grainger, Hawkins
4708	Chickamauga Lake	Hamilton, Rhea, Meigs, McMinn
4711	Douglas Lake	Sevier, Jefferson, Cocke
4712	Fort Loudon Lake	Loudon, Knox, Blount
4713	Great Falls Lake	White, Van Buren
4717	Nickajack Reservoir	Marion, Hamilton
4720	Old Hickory Lake	Sumner, Davidson, Wilson, Smith, Trousdale
4722	Watts Bar Lake	Rhea, Meigs, Cumberland, Roane, Loudon
4723	Percy Priest Reservoir	Davidson, Rutherford
4724	Tims Ford Reservoir	Moore, Franklin
4725	South Holston Lake	Sullivan (Washington in VA)
4727	Reelfoot Lake	Obion
4728	Woods Reservoir (Elk River Reservoir)	Franklin, Coffee

MATERIALS AND METHODS

LAKE AND SITE SELECTION

Lakes and reservoirs included in the Survey were selected through discussions with State water pollution agency personnel and U.S. Environmental Protection Agency Regional Offices (U.S. EPA 1975). Screening and selection strongly emphasized lakes with actual or potential accelerated eutrophication problems. As a result, the selection was limited to lakes:

(1) Impacted by one or more municipal sewage treatment plant outfalls either directly into the lake or by discharge to an inlet tributary within approximately 40 kilometers of the lake;

(2) 40 hectares or larger in size; and

(3) With a mean hydraulic retention time of at least 30 days.

Specific selection criteria were waived for some lakes of particular State interest.

Sampling sites for a lake were selected based on available information on lake morphometry, potential major sources of nutrient input, and on-site judgment of the field limnologist (U.S. EPA 1975). Primary sampling sites were chosen to reflect the deepest portion of each major basin in a test lake. Where many basins were present, selection was guided by nutrient source information on hand. At each sampling site, a depth-integrated phytoplankton sample was taken. Depth-integrated samples were a uniform mixture of water from the surface to a depth of 15 feet (4.6 meters) or from the surface to the lower limit of the photic zone representing 1 percent of the incident light, whichever was greater. If the depth at the sampling site was less than 15 feet (4.6 meters), the sample was taken from just off the bottom to the surface. Normally, a lake was sampled three times in 1 year, providing information on spring, summer, and fall conditions.

SAMPLE PREPARATION

Four milliliters (ml) of Acid-Lugol's solution (Prescott 1970) were added to each 130-ml sample from each site at the time of collection for preservation. The samples were shipped to the Environmental Monitoring and Support Laboratory, Las Vegas, Nevada, where equal volumes from each site were mixed to form two 130-ml composite samples for a given lake. One composite sample was put into storage and the other was used for the examination.

Prior to examination, the composite samples were concentrated by the settling method. Solids were allowed to settle for at least 24 hours prior to siphoning off the supernatant. The volume of the removed supernatant and the volume of the remaining concentrate were measured and concentrations determined. A small (8 ml) library subsample of the concentrate was then taken. The remaining concentrate was gently agitated to resuspend the plankton and poured into a capped, graduated test tube. If a preliminary examination of a sample indicated the need for a more concentrated sample, the contents of the test tube were further concentrated by repeating the settling method. Final concentrations varied from 15 to 40 times the original.

Permanent slides were prepared from concentrated samples after analysis was complete. A drop of superconcentrate from the bottom of the test tube was placed in a ring of clear Karo Corn Syrup with phenol (a few crystals of phenol were added to each 100 ml of syrup) on a glass slide, thoroughly mixed, and topped with a coverglass. After the syrup at the edges of the coverglass had hardened, the excess was scraped away and the mount was sealed with clear fingernail polish. Permanent diatom slides were prepared by drying sample material on a coverglass, heating in a muffle furnace at 400^{0} C for 45 minutes, and mounting in Hyrax. Finally, the mounts were sealed with clear fingernail polish.

Backup samples, library samples, permanent sample slides, and Hyrax-mounted diatom slides are being stored and maintained at the U.S. EPA's Environmental Monitoring and Support Laboratory-Las Vegas.

EXAMINATION

The phytoplankton samples were examined with the aid of binocular compound microscopes. A preliminary examination was performed to precisely identify and list all forms encountered. The length of this examination varied depending on the complexity of the sample. An attempt was made to find and identify all of the forms present in each sample. Often forms were observed which could not be identified to species or to genus. Abbreviated descriptions were used to keep a record of these forms (e.g., lunate cell, blue-green filament, Navicula #1). Diatom slides were examined using a standard light microscope. If greater resolution was essential to accurately identify the diatoms, a phase-contrast microscope was used.

After the species list was compiled, phytoplankton were enumerated using a Neubauer Counting Chamber with a 40x objective lens and a 10x ocular lens. All forms within each field were counted. The count was continued until a minimum of 100 fields had been viewed, or until the dominant form had been observed a minimum of 100 times.

QUALITY CONTROL

Internal quality control checks on species identifications and counts were performed on a regular basis between project phycologists at the rate of 7 percent. Although an individual had primary responsibility for analyzing a sample, taxonomic problems were discussed among the phycologists.

Additional quality control checks were performed on the Survey samples by Dr. G. W. Prescott of the University of Montana at the rate of 5 percent. Quality control checks were made on 75 percent of these samples to verify species identifications while checks were made on the remaining 25 percent of the samples to verify genus counts. Presently, the agreement between quality control checks for species identification and genus enumerations is satisfactory.

RESULTS

The Appendix summarizes all of the phytoplankton data collected from the State by the Survey. It is organized by lake, including an alphabetical phytoplankton species list with concentrations for individual species given by sampling date. Results from the application of several indices are presented (Nygaard's Trophic State, Palmer's Organic Pollution, and species diversity and abundance). Each lake has been assigned a four-digit STORET number. [STORET (STOrage and RETrieval) is the U.S. EPA's computer system which processes and maintains water quality data.] The first two digits of the STORET number identify the State; the last two digits identify the lake.

NYGAARD'S TROPHIC STATE INDICES

Five indices devised by Nygaard (1949) were proposed under the assumption that certain algal groups are indicative of levels of nutrient enrichment. These indices were calculated in order to aid in determining the surveyed lakes' trophic status. As a general rule, Cyanophyta, Euglenophyta, centric diatoms, and members of the Chlorococcales are found in waters that are eutrophic (rich in nutrients), while desmids and many pennate diatoms generally cannot tolerate high nutrient levels and so are found in oligotrophic waters (poor in nutrients).

In applying the indices to the Survey data, the number of taxa in each major group was determined from the species list for each sample. The ratios of these groups give numerical values which can be used as a biological index of water richness. The five indices and the ranges of values established for Danish lakes by Nygaard for each trophic state are presented in Table 2. The appropriate symbol, (E) eutrophic and (O) oligotrophic, follows each calculated value in the tables in the Appendix. A question mark (?) was entered in these tables when the calculated value was within the range of both classifications.

Table 2. Nygaard's Trophic State Indices adapted from Hutchinson (1967)

Index	Calculation	Oligotrophic	Eutrophic
Myxophycean	$\frac{\text{Myxophyceae}}{\text{Desmideae}}$	0.0-0.4	0.1-3.0
Chlorophycean	$\frac{\text{Chlorococcales}}{\text{Desmideae}}$	0.0-0.7	0.2-9.0
Diatom	$\frac{\text{Centric Diatoms}}{\text{Pennate Diatoms}}$	0.0-0.3	0.0-1.75
Euglenophyte	$\frac{\text{Euglenophyta}}{\text{Myxophyceae + Chlorococcales}}$	0.0-0.2	0.0-1.0
Compound	$\frac{\text{Myxophyceae + Chlorococcales + Centric Diatoms + Euglenophyta}}{\text{Desmideae}}$	0.0-1.0	1.2-25

PALMER'S ORGANIC POLLUTION INDICES

Palmer (1969) analyzed reports from 165 authors and developed algal pollution indices for use in rating water samples with high organic pollution. Two lists of organic pollution-tolerant forms were prepared, one containing 20 genera, the other, 20 species (Tables 3 and 4). Each form was assigned a pollution index number ranging from 1 for moderately tolerant forms to 6 for extremely tolerant forms. Palmer based the index numbers on occurrence records and/or where emphasized by the authors as being especially tolerant of organic pollution.

Table 3. Algal Genus Pollution Index (Palmer 1969)

	Pollution Index		Pollution Index
Anacystis	1	*Micractinium*	1
Ankistrodesmus	2	*Navicula*	3
Chlamydomonas	4	*Nitzschia*	3
Chlorella	3	*Oscillatoria*	5
Closterium	1	*Pandorina*	1
Cyclotella	1	*Phacus*	2
Euglena	5	*Phormidium*	1
Gomphonema	1	*Scenedesmus*	4
Lepocinclis	1	*Stigeoclonium*	2
Melosira	1	*Synedra*	2

Table 4. Algal Species Pollution Index (Palmer 1969)

	Pollution Index		Pollution Index
Ankistrodesmus falcatus	3	*Nitzschia palea*	5
Arthrospira jenneri	2	*Oscillatoria chlorina*	2
Chlorella vulgaris	2	*Oscillatoria limosa*	4
Cyclotella meneghiniana	2	*Oscillatoria princeps*	1
Euglena gracilis	1	*Oscillatoria putrida*	1
Euglena viridis	6	*Oscillatoria tenuis*	4
Gomphonema parvulum	1	*Pandorina morum*	3
Melosira varians	2	*Scenedesmus quadricauda*	4
Navicula cryptocephala	1	*Stigeoclonium tenue*	3
Nitzschia acicularis	1	*Synedra ulna*	3

In analyzing a water sample, any of the 20 genera or species of algae present in concentrations of 50 per milliliter or more are recorded. The pollution index numbers of the algae present are totaled, providing a genus score and a species score. Palmer determined that a score of 20 or more for either index can be taken as evidence of high organic pollution, while a score of 15 to 19 is taken as probable evidence of high organic pollution. Lower figures suggest that the organic pollution of the sample is not high, that the sample is not representative, or that some substance or factor interfering with algal persistence is present and active.

SPECIES DIVERSITY AND ABUNDANCE INDICES

"Information content" of biological samples is being used commonly by biologists as a measure of diversity. Diversity in this connection means the degree of uncertainty attached to the specific identity of any randomly selected individual. The greater the number of taxa and the more equal their proportions, the greater the uncertainty, and hence, the diversity (Pielou 1966). There are several methods of measuring diversity, e.g., the formulas given by Brillouin (1962) and Shannon and Weaver (1963). The method which is appropriate depends on the type of biological sample on hand.

Pielou (1966) classifies the types of biological samples and gives the measure of diversity appropriate for each type. The Survey phytoplankton samples are what she classifies as larger samples (collections in Pielou's terminology) from which random subsamples can be drawn. According to Pielou, the average diversity per individual for these types of samples can be estimated from the Shannon-Wiener formula (Shannon and Weaver 1963):

$$H = -\sum_{i=1}^{S} P_i \log_x P_i$$

Where P is the proportion of the ith taxon in the sample, which is calculated from n_i/N; n_i is the number of individuals per milliliter of the ith taxon; N is the total number of individuals per ml; and S is the total number of taxa.

However, Basharin (1959) and Pielou (1966) have pointed out that H calculated from the subsample is a biased estimator of the sample H, and if this bias is to be accounted for, we must know the total number of taxa present in the sample since the magnitude of this bias depends on it.

Pielou (1966) suggests that if the number of taxa in the subsample falls only slightly short of the number in the larger sample, no appreciable error will result in considering S, estimated from the subsample, as being equal to the sample value. Even though considerable effort was made to find and identify all taxa, the Survey samples undoubtedly contain a fair number of rare phytoplankton taxa which were not encountered.

In the Shannon-Wiener formula, an increase in the number of taxa and/or an increase in the evenness of the distribution of individuals among taxa will increase the average diversity per individual from its minimal value of zero. Sager and Hasler (1969) found that the richness of taxa was of minor importance in determination of average diversity per individual for phytoplankton and they concluded that phytoplankton taxa in excess of the 10 to 15 most abundant ones have little effect on H, which was verified by our own calculations. Our counts are in number per ml and since logarithms to the base 2 were used in our calculations, H is expressed in units of bits per individual. When individuals of a taxon were so rare that they were not counted, a value of 1/130 per ml or 0.008 per ml was used in the calculations since at least one individual of the taxon must have been present in the collection.

A Survey sample for a given lake represents a composite of all phytoplankton collected at different sampling sites on a lake during a given sampling period. Since the number of samples (M) making up a composite is a function of both the complexity of the lake sampled and its size, it should affect the richness of taxa component of the diversity of our phytoplankton collections. The maximum diversity (MaxH) (i.e., when the individuals are distributed among the taxa as evenly as possible) was estimated from $\log_2 S$, the total diversity (D) was calculated from HN, and the evenness component of diversity (J) was estimated from H/MaxH (Pielou 1966). Also given in the Appendix are L (the mean number of individuals per taxa per ml) and K (the number of individuals per ml of the most abundant taxon in the sample).

Zand (1976) suggests that diversity indices be expressed in units of "sits", i.e., in logarithms to base S (where S is the total number of taxa in the sample) instead of in "bits", i.e., in logarithms to base 2. Zand points out that the diversity index in sits per individual is a normalized number ranging from 1 for the most evenly distributed samples to 0 for the least evenly distributed samples. Also, it can be used to compare different samples, independent of the number of

taxa in each. The diversity in bits per individual should not be used in direct comparisons involving various samples which have different numbers of species. Since MaxH equals log S, the expression in sits is equal to $\log_S S$ or 1. Therefore diversity in sits per individual is numerically equivalent to J, the evenness component for the Shannon-Wiener formula.

SPECIES OCCURRENCE AND ABUNDANCE

The alphabetic phytoplankton species list for each lake, presented in the Appendix, gives the concentrations of individual species by sampling date. Concentrations are in cells, colonies, or filaments (CEL, COL, FIL) per ml. An "X" after a species name indicates the presence of the species on that date in such a low concentration that it did not show up in the count. A blank space indicates that the organism was not found in the sample collected on that date. Column S is used to designate the examiner's subjective opinion of the five dominant taxa in a sample, based upon relative size and concentration of the organism. The percent column (%C) presents, by abundance, the percentage composition of each taxon.

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APPENDIX

SUMMARY OF PHYTOPLANKTON DATA

The Appendix format was computer generated. Because it was only possible to use upper case letters in the printout, all scientific names are printed in upper case and are not italicized.

The alphabetic phytoplankton lists include taxa without species names (e.g., EUNOTIA, EUNOTIA #1, EUNOTIA ?, FLAGELLATE, FLAGELLATES, MICROSYSTIS INCERTA ?, CHLOROPHYTAN COCCOID CELLED COLONY). When species determinations were not possible, symbols or descriptive phrases were used to separate taxa for enumeration purposes. Each name on a list, however, represents a unique species different from any other name on the same list, unless otherwise noted, for counting purposes.

Numbers were used to separate unidentified species of the same genus. A generic name listed alone is also a unique species. A question mark (?) is placed immediately after the portion of a name which was assigned with uncertainty. Numbered, questioned, or otherwise designated taxa were established on a lake-by-lake basis; therefore NAVICULA #2 from lake A cannot be compared to NAVICULA #2 from lake B. Pluralized categories (e.g., FLAGELLATES, CENTRIC DIATOMS, SPP.) were used for counting purposes when taxa could not be properly differentiated on the counting chamber.

LAKE NAME: BARKLEY LAKE
STORET NUMBER: 4701

NYGAARD TROPHIC STATE INDICES

DATE	05 16 73	08 14 73	10 20 73
MYXOPHYCEAN	02/0 E	8.00 E	2.50 E
CHLOROPHYCEAN	03/0 E	10.0 E	3.00 E
EUGLENOPHYTE	0.60 E	0.17 ?	0.27 E
DIATOM	0.82 E	0.75 E	0.75 E
COMPOUND	17/0 E	27.0 E	10.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 16 73	08 14 73	10 20 73
GENUS	02	14	11
SPECIES	00	02	02

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 16 73	08 14 73	10 20 73
AVERAGE DIVERSITY	H	2.51	3.25	3.09
NUMBER OF TAXA	S	36.00	39.00	35.00
NUMBER OF SAMPLES COMPOSITED	M	10.00	6.00	5.00
MAXIMUM DIVERSITY	MAXH	5.17	5.29	5.13
TOTAL DIVERSITY	D	38144.47	20670.00	11562.78
TOTAL NUMBER OF INDIVIDUALS/ML	N	15197.00	6360.00	3742.00
EVENESS COMPONENT	J	0.49	0.61	0.60
MEAN NUMBER OF INDIVIDUALS/TAXA	L	422.14	163.08	106.91
NUMBER/ML OF MOST ABUNDANT TAXON	K	5061.00	2202.00	1022.00

LAKE NAME: BARKLEY LAKE
STORET NUMBER: 4701

CONTINUED

TAXA	FORM	05 16 73 S	05 16 73 %C	05 16 73 ALGAL UNITS PER ML	08 14 73 S	08 14 73 %C	08 14 73 ALGAL UNITS PER ML	10 20 73 S	10 20 73 %C	10 20 73 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII	COL			X						
ANABAENA	FIL					1.4	91		0.4	16
ASTERIONELLA FORMOSA	CEL		0.1	15						
CARTERIA	CEL			X						
CLOSTERIUM	CEL									X
COCCONEIS	CEL						X			
COELASTRUM MICROPORUM	COL			X						
COELASTRUM SPHAERICUM ?	COL								0.4	16
CRUCIGENIA APICULATA	COL					2.1	136			
CRYPTOMONAS	CEL		1.1	167		3.6	227		3.4	126
CRYPTOMONAS #1	CEL			X						
CRYPTOMONAS #2	CEL			X						
CYANOPHYTAN FILAMENT	FIL					2.5	159			
CYCLOTELLA	CEL				5	3.9	250			
CYCLOTELLA #1	CEL	5	5.0	758						
CYCLOTELLA MENEGHINIANA	CEL					1.4	91		1.7	63
CYCLOTELLA PSEUDOSTELLIGERA	CEL								0.8	31
CYCLOTELLA STELLIGERA	CEL		0.7	106						
CYMBELLA	CEL		0.1	15						
DACTYLOCOCCOPSIS	CEL		0.7	106					1.3	47
DICTYOSPHAERIUM PULCHELLUM	COL						X			X
DINOBRYON DIVERGENS	CEL			X						
DINOFLAGELLATE	CEL		0.9	136		0.4	23			
DINOFLAGELLATE #2	CEL								0.4	16
EUASTRUM	CEL						X			X
EUGLENA	CEL		0.1	15			X			X
EUGLENA #1	CEL									X
FLAGELLATES	CEL	4	8.4	1273		3.6	228	2	27.3	1022
FRAGILARIA	CEL			X						
FRAGILARIA CROTONENSIS	CEL			X						
GLOEOCYSTIS ?	COL								0.4	16
GONIUM	COL			X						

LAKE NAME: BARKLEY LAKE
STORET NUMBER: 4701

CONTINUED

TAXA	FORM	05 16 73 S	05 16 73 %C	05 16 73 ALGAL UNITS PER ML	08 14 73 S	08 14 73 %C	08 14 73 ALGAL UNITS PER ML	10 20 73 S	10 20 73 %C	10 20 73 ALGAL UNITS PER ML
HANTZSCHIA	CEL			X						
KIRCHNERIELLA LUNARIS V. IRREGULARIS	CEL								0.8	31
LYNGBYA	FIL								0.4	16
LYNGBYA LIMNETICA	FIL					0.4	23			
MELOSIRA ?	CEL		3.5	530						
MELOSIRA #2	CEL	1	33.3	5061	1	15.0	953	5	3.4	126
MELOSIRA #3	CEL						X			
MELOSIRA #5	CEL			X						
MELOSIRA DISTANS	CEL	3	14.1	2136	2	34.6	2202	1	25.2	943
MELOSIRA VARIANS	CEL			X						
MERISMOPEDIA	COL					1.1	68			
MERISMOPEDIA MINIMA	COL								0.4	16
NAVICULA	CEL						X			
NAVICULA ?	CEL									X
NAVICULA #1	CEL			X						X
NAVICULA #2	CEL						X			
NAVICULA #3	CEL			X						
NAVICULA #4	CEL			X						
NAVICULA BICONICA	CEL			X						
NITZSCHIA	CEL								0.4	16
NITZSCHIA #1	CEL					2.5	159			
NITZSCHIA #2	CEL		0.2	30						
NITZSCHIA #3	CEL									X
NITZSCHIA ACICULARIS	CEL								0.8	31
NITZSCHIA ACICULARIS ?	CEL						X			
OSCILLATORIA	FIL			X						
OSCILLATORIA #1	FIL					0.4	23			
OSCILLATORIA #2	FIL						X		2.5	94
OSCILLATORIA GEMINATA	FIL				3	11.1	704			
PANDORINA MORUM	COL								0.4	16
PEDIASTRUM TETRAS V. TETRAODON	COL						X			

LAKE NAME: BARKLEY LAKE
STORET NUMBER: 4701

CONTINUED

TAXA	FORM	05 16 73 S	05 16 73 %C	05 16 73 ALGAL UNITS PER ML	08 14 73 S	08 14 73 %C	08 14 73 ALGAL UNITS PER ML	10 20 73 S	10 20 73 %C	10 20 73 ALGAL UNITS PER ML
PENNATE DIATOM #1	CEL								0.8	31
PENNATE DIATOM #2	CEL								0.4	16
PHACUS	CEL			X						
RAPHIDIOPSIS	FIL					5.0	318			
SCENEDESMUS	COL								2.1	79
SCENEDESMUS #1	COL						X			
SCENEDESMUS ABUNDANS	COL					0.7	45			
SCENEDESMUS ACUMINATUS	COL		0.1	15			X			X
SCENEDESMUS ECORNIS V. DISCIFORMIS	COL					0.4	23			
SCHROEDERIA	CEL					0.4	23			
SELENASTRUM ?	COL									X
SKELETONEMA POTAMOS	CEL	2	30.5	4637	4	8.6	545	3	17.2	644
STEPHANODISCUS	CEL		1.2	182				4	8.0	299
SYNEDRA	CEL								0.8	31
SYNEDRA DELICATISSIMA ? V. ANGUSTISSIMA	CEL			X						
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL						X			
SYNEDRA ULNA V. CONTRACTA	CEL						X			
TABELLARIA	CEL					0.4	23			
TETRAEDRON #1	CEL					0.4	23			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL						X			
TRACHELOMONAS	CEL		0.1	15		0.4	23			X
TRACHELOMONAS #1	CEL						X			
TOTAL				15197			6360			3742

LAKE NAME: BOONE RES.
STORET NUMBER: 4704

NYGAARD TROPHIC STATE INDICES

DATE	04 03 73	10 27 73
MYXOPHYCEAN	3.00 E	3.00 E
CHLOROPHYCEAN	2.00 E	8.00 E
EUGLENOPHYTE	0.40 E	0.18 ?
DIATOM	0.50 E	0.60 E
COMPOUND	11.0 E	16.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	04 03 73	10 27 73
GENUS	05	26
SPECIES	00	07

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		04 03 73	10 27 73
AVERAGE DIVERSITY	H	1.71	2.74
NUMBER OF TAXA	S	21.00	31.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00
MAXIMUM DIVERSITY	MAXH	4.39	4.95
TOTAL DIVERSITY	D	12900.24	73774.50
TOTAL NUMBER OF INDIVIDUALS/ML	N	7544.00	26925.00
EVENESS COMPONENT	J	0.39	0.55
MEAN NUMBER OF INDIVIDUALS/TAXA	L	359.24	868.55
NUMBER/ML OF MOST ABUNDANT TAXON	K	4268.00	11379.00

LAKE NAME: BOONE RES.
STORET NUMBER: 4704

CONTINUED

TAXA	FORM	04 03 73 S	04 03 73 %C	04 03 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
ACHNANTHES	CEL			X			
ACHNANTHES MICROCEPHALA ?	CEL						X
ACTINASTRUM HANTZSCHII	COL			X			
ASTERIONELLA FORMOSA	CEL			X			
CARTERIA	CEL						X
CERATIUM HIRUNDINELLA	CEL						X
CHLAMYDOMONAS	CEL					0.4	102
CHLOROGONIUM	CEL						X
CLOSTERIUM ?	CEL			X			
COELASTRUM	COL					0.4	102
CRYPTOMONAS	CEL				2	5.3	1423
CYCLOTELLA #1	CEL					2.5	660
CYCLOTELLA STELLIGERA	CEL				5	2.8	762
CYMBELLA	CEL						X
DACTYLOCOCCOPSIS	CEL	5	6.0	451	3	42.3	11379
DINOFLAGELLATE	CEL					0.2	51
EUGLENA	CEL			X		0.4	102
FLAGELLATES	CEL	1	56.6	4268	1	23.0	6197
FRANCEIA DROESCHERI	CEL						X
MELOSIRA #2	CEL	4	1.6	120			
MELOSIRA #5	CEL			X			
MELOSIRA DISTANS	CEL	3	7.2	541			X
MESOSTIGMA	CEL					1.9	508
MICROCYSTIS INCERTA	COL					0.2	51
NAVICULA	CEL						X
NAVICULA ?	CEL			X			
NAVICULA CRYPTOCEPHALA ?	CEL			X			
NITZSCHIA	CEL					0.8	203
OSCILLATORIA	FIL			X			
OSCILLATORIA ANGUSTA	FIL			X		0.6	152
PANDORINA MORUM	COL					0.2	51
PEDIASTRUM SIMPLEX	COL						X

LAKE NAME: BOONE RES.
STORET NUMBER: 4704

CONTINUED

TAXA	FORM	04 03 73 S	04 03 73 %C	04 03 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
PENNATE DIATOM #1	CEL		0.4	30			
PHACUS	CEL					0.2	51
SCENEDESMUS ACUMINATUS	COL					2.8	762
SCENEDESMUS DISPAR	COL					3.2	864
SCENEDESMUS INTERMEDIUS ?	COL					2.6	711
SCENEDESMUS OBLIQUUS	COL		0.8	60			
SCENEDESMUS QUADRICAUDA	COL					2.6	711
STAURASTRUM	CEL						X
STEPHANODISCUS	CEL	2	27.1	2044			
SURIRELLA	CEL			X			
SURIRELLA ANGUSTATA	CEL			X			
SYNEDRA	CEL						X
SYNEDRA RUMPENS V. FAMILIARIS	CEL		0.4	30			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL				4	7.7	2083
TRACHELOMONAS	CEL			X			
TOTAL				7544			26925

LAKE NAME: CHEATHAM RES.
STORET NUMBER: 4706

NYGAARD TROPHIC STATE INDICES

DATE	05 21 73	08 16 73	10 23 73
MYXOPHYCEAN	2.00 E	7.00 E	2.50 E
CHLOROPHYCEAN	0/01 O	13.0 E	8.50 E
EUGLENOPHYTE	1.00 E	0.05 ?	0.09 ?
DIATOM	0.43 E	1.00 E	1.00 E
COMPOUND	10.0 E	28.0 E	14.5 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 21 73	08 16 73	10 23 73
GENUS	04	16	13
SPECIES	02	00	07

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 21 73	08 16 73	10 23 73
AVERAGE DIVERSITY	H	2.55	3.75	2.42
NUMBER OF TAXA	S	27.00	39.00	38.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	1.00
MAXIMUM DIVERSITY	MAXH	4.75	5.29	5.25
TOTAL DIVERSITY	D	10314.75	17861.25	16131.72
TOTAL NUMBER OF INDIVIDUALS/ML	N	4045.00	4763.00	6666.00
EVENESS COMPONENT	J	0.54	0.71	0.46
MEAN NUMBER OF INDIVIDUALS/TAXA	L	149.81	122.13	175.42
NUMBER/ML OF MOST ABUNDANT TAXON	K	1173.00	1152.00	3223.00

LAKE NAME: CHEATHAM RES.
STORET NUMBER: 4706

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA V. DUBIA	CEL			X						
ACTINASTRUM HANTZSCHII	COL								0.8	52
ANABAENA #1	FIL					1.1	52			X
ANABAENA #2	FIL									X
ANABAENOPSIS	FIL					0.4	17			
ANKISTRODESMUS FALCATUS	CEL					0.7	35		1.3	87
ASTERIONELLA FORMOSA	CEL		0.3	14						X
CENTRITRACTUS ? BELANOPHORUS	CEL					0.4	17			
CLOSTERIUM	CEL			X						X
COCCONEIS PLACENTULA V. EUGLYPTA	CEL			X						X
COELASTRUM SPHAERICUM	COL						X			
CRUCIGENIA APICULATA	COL						X			X
CYANOPHYTAN FILAMENT	FIL				4	5.9	279			
CYCLOTELLA	CEL								2.6	174
CYCLOTELLA ATOMUS	CEL					0.4	17			
CYCLOTELLA STELLIGERA	CEL		0.3	14		1.8	87			
CYMBELLA	CEL			X						
DACTYLOCOCCOPSIS	CEL		0.7	28		2.2	105		2.6	174
DICTYOSPHAERIUM PULCHELLUM	COL									X
DINOFLAGELLATE	CEL		0.7	28						X
EUASTRUM	CEL					0.4	17			X
EUGLENA	CEL			X					0.3	17
FLAGELLATES	CEL	2	21.5	869	5	9.2	436	3	22.5	1498
FRAGILARIA #1	CEL			X						
FRAGILARIA #2	CEL			X						
FRAGILARIA CROTONENSIS	CEL					1.8	87			
GLOEOCYSTIS ?	COL						X			
GOMPHONEMA OLIVACEUM	CEL			X						
KIRCHNERIELLA	CEL									X
LAGERHEIMIA	CEL					0.4	17			

LAKE NAME: CHEATHAM RES.
STORET NUMBER: 4706

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
MELOSIRA #2	CEL	4	5.5	221	3	8.1	384	2	11.2	749
MELOSIRA #5	CEL					2.9	140			
MELOSIRA DISTANS	CEL	5	17.1	690	1	24.2	1152	1	48.3	3223
MELOSIRA VARIANS	CEL		1.4	55						
MERISMOPEDIA	COL						X			
NAVICULA	CEL			X						
NAVICULA #1	CEL						X			
NAVICULA #2	CEL						X			
NAVICULA CRYPTOCEPHALA V. VENETA	CEL			X						
NAVICULA MUTICA V. TROPICA	CEL			X						
NAVICULA SALINARIUM V. INTERMEDIA	CEL			X						
NITZSCHIA	CEL		1.7	69		2.9	140		0.8	52
OSCILLATORIA GEMINATA	FIL									X
OSCILLATORIA LIMNETICA	FIL			X		1.8	87		0.3	17
PEDIASTRUM BIRADIATUM	COL									X
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM ?	COL									X
PEDIASTRUM DUPLEX V. RETICULATUM	COL						X		0.3	17
PEDIASTRUM SIMPLEX	COL									X
PEDIASTRUM TETRAS V. TETRAODON	COL					0.4	17			
PENNATE DIATOM	CEL					0.7	35			
PHACUS	CEL									X
PHACUS ACUMINATUS	CEL						X			
RAPHIDIOPSIS	FIL					2.9	140			
SCENEDESMUS #1	COL					0.7	35		0.8	52
SCENEDESMUS #2	COL					0.7	35			
SCENEDESMUS #3	COL								0.3	17

LAKE NAME: CHEATHAM RES
STORET NUMBER: 4706

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
SCENEDESMUS #4	COL								0.3	17
SCENEDESMUS ABUNDANS ?	COL					1.1	52			
SCENEDESMUS DIMORPHUS	COL					0.7	35		0.3	17
SCENEDESMUS QUADRICAUDA	COL								0.8	52
SCHROEDERIA	CEL								0.3	17
SCHROEDERIA SETIGERA	CEL						X			
SKELETONEMA POTAMOS	CEL	3	20.8	842	2	16.9	803	4	4.4	296
STEPHANODISCUS	CEL	1	29.0	1173					0.3	17
STEPHANODISCUS ?	CEL					7.7	367			
SYNEDRA ? #1	CEL								0.3	17
SYNEDRA #1	CEL		0.3	14		0.7	35			
SYNEDRA DELICATISSIMA	CEL			X				5	1.3	87
SYNEDRA DELICATISSIMA ?	CEL					2.2	105			
TETRAEDRON MINIMUM	CEL									X
TETRASTRUM HETERACANTHUM	COL								0.3	17
TETRASTRUM STAUROGENIAEFORME	COL						X			
TRACHELOMONAS	CEL		0.7	28						
TREUBARIA TRIAPPENDICULATA	CEL					0.7	35			
TOTAL				4045			4763			6666

LAKE NAME: CHEROKEE LAKE
STORET NUMBER: 4707

NYGAARD TROPHIC STATE INDICES

DATE	05 24 73	08 23 73	10 27 73
MYXOPHYCEAN	2.00 E	1.50 E	02/0 E
CHLOROPHYCEAN	11.0 E	3.50 E	07/0 E
EUGLENOPHYTE	0/13 ?	0/10 ?	0.22 E
DIATOM	0.60 E	1.25 E	1.00 E
COMPOUND	16.0 E	7.50 E	16/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 24 73	08 23 73	10 27 73
GENUS	11	05	05
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 24 73	08 23 73	10 27 73
AVERAGE DIVERSITY	H	2.90	0.90	2.42
NUMBER OF TAXA	S	27.00	25.00	26.00
NUMBER OF SAMPLES COMPOSITED	M	7.00	7.00	7.00
MAXIMUM DIVERSITY	MAXH	4.75	4.64	4.70
TOTAL DIVERSITY	D	14543.50	29349.00	9324.26
TOTAL NUMBER OF INDIVIDUALS/ML	N	5015.00	32610.00	3853.00
EVENESS COMPONENT	J	0.61	0.19	0.51
MEAN NUMBER OF INDIVIDUALS/TAXA	L	185.74	1304.40	148.19
NUMBER/ML OF MOST ABUNDANT TAXON	K	1486.00	28561.00	2162.00

LAKE NAME: CHEROKEE LAKE
STORET NUMBER: 4707

CONTINUED

TAXA	FORM	05 24 73 S	05 24 73 %C	05 24 73 ALGAL UNITS PER ML	08 23 73 S	08 23 73 %C	08 23 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA ?	CEL			X		0.3	87			X
ASTERIONELLA FORMOSA	CEL		0.3	15						
CARTERIA ?	CEL		3.5	175						
CENTRIC DIATOM	CEL					0.7	218		1.2	48
CERATIUM HIRUNDINELLA	CEL			X					1.2	48
CERATIUM HIRUNDINELLA F. ?	CEL						X			
CHLOROGONIUM	CEL								1.2	48
COELASTRUM RETICULATUM	COL						X			
COELASTRUM SPHAERICUM	COL		0.3	15						
COELASTRUM SPHAERICUM ?	COL						X			
COSMARIUM	CEL		0.3	15			X			
COSMARIUM #2	CEL						X			
CYCLOTELLA	CEL				2	3.7	1219			
CYCLOTELLA MENEGHINIANA ?	CEL						X			
CYCLOTELLA STELLIGERA	CEL	3	16.0	801						
DACTYLOCOCCOPSIS	CEL		0.6	29					2.5	95
DINOFLAGELLATE	CEL						X			
DINOFLAGELLATE #2	CEL		0.3	15			X		1.2	48
FLAGELLATES	CEL	1	29.6	1486	3	3.2	1045	1	56.1	2162
FRAGILARIA CROTONENSIS	CEL		2.0	102						X
KIRCHNERIELLA	CEL									X
MELOSIRA #2	CEL			X					0.6	24
MELOSIRA DISTANS	CEL					0.3	87	2	9.9	380
MELOSIRA DISTANS ?	CEL	2	26.7	1340						
MERISMOPEDIA TENUISSIMA	COL					0.7	218			
MESOSTIGMA	CEL							5	3.7	143
MICROCYSTIS INCERTA	COL					0.3	87			
NAVICULA	CEL									X
NITZSCHIA	CEL	4	4.9	248			X		1.2	48
OSCILLATORIA	FIL									X
OSCILLATORIA LIMNETICA	FIL		0.3	15						

LAKE NAME: CHEROKEE LAKE
STORET NUMBER: 4707

CONTINUED

TAXA	FORM	05 24 73 S	05 24 73 %C	05 24 73 ALGAL UNITS PER ML	08 23 73 S	08 23 73 %C	08 23 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
PEDIASTRUM SIMPLEX	COL						X			X
PENNATE DIATOM	CEL					0.4	131			
PHACUS ACUMINATUS	CEL								0.6	24
RAPHIDIOPSIS CURVATA	FIL				1	87.6	28561			
SCENEDESMUS	COL					0.1	43			
SCENEDESMUS #1	COL		4.1	204			X		0.6	24
SCENEDESMUS #2	COL									X
SCENEDESMUS #3	COL						X			
SCENEDESMUS #7	COL		0.3	15						
SCENEDESMUS ABUNDANS	COL		2.0	102					0.6	24
SCENEDESMUS BIJUGA	COL		0.3	15						
SCENEDESMUS DENTICULATUS	COL			X						
SCENEDESMUS DIMORPHUS	COL			X					1.2	48
SCENEDESMUS OBLIQUUS	COL		2.0	102						
SCENEDESMUS QUADRICAUDA	COL			X						
SCENEDESMUS SPP.	COL	5	4.6	233						
SKELETONEMA POTAMOS	CEL					0.5	174	4	8.0	309
STEPHANODISCUS	CEL							3	9.2	356
SYNEDRA	CEL		1.5	73						X
SYNEDRA ?	CEL				4	0.9	305			
TETRAEDRON MINIMUM	CEL		0.3	15	5	1.3	435			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL									X
TETRASTRUM STAUROGENIAEFORME	COL			X						
TRACHELOMONAS	CEL								0.6	24
TOTAL				5015			32610			3853

LAKE NAME: CHICKAMAUGA LAKE
STORET NUMBER: 4708

NYGAARD TROPHIC STATE INDICES

DATE	05 23 73	08 23 73	10 29 73
MYXOPHYCEAN	02/0 E	4.00 E	02/0 E
CHLOROPHYCEAN	04/0 E	4.00 E	03/0 E
EUGLENOPHYTE	0.17 ?	0.12 ?	0.20 ?
DIATOM	0.60 E	0.83 E	0.62 E
COMPOUND	13/0 E	14.0 E	11/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 23 73	08 23 73	10 29 73
GENUS	04	11	03
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 23 73	08 23 73	10 29 73
AVERAGE DIVERSITY	H	3.17	3.45	1.84
NUMBER OF TAXA	S	27.00	26.00	22.00
NUMBER OF SAMPLES COMPOSITED	M	6.00	6.00	6.00
MAXIMUM DIVERSITY	MAXH	4.75	4.70	4.46
TOTAL DIVERSITY	D	4257.31	3694.95	2574.16
TOTAL NUMBER OF INDIVIDUALS/ML	N	1343.00	1071.00	1399.00
EVENESS COMPONENT	J	0.67	0.73	0.41
MEAN NUMBER OF INDIVIDUALS/TAXA	L	49.74	41.19	63.59
NUMBER/ML OF MOST ABUNDANT TAXON	K	438.00	241.00	974.00

LAKE NAME: CHICKAMAUGA LAKE
STORET NUMBER: 4708

CONTINUED

TAXA	FORM	05 23 73 S	05 23 73 %C	05 23 73 ALGAL UNITS PER ML	08 23 73 S	08 23 73 %C	08 23 73 ALGAL UNITS PER ML	10 29 73 S	10 29 73 %C	10 29 73 ALGAL UNITS PER ML
ANKISTRODESMUS	CEL		0.7	10						
ASTERIONELLA FORMOSA	CEL		3.1	41						
CENTRIC DIATOM	CEL					5.0	54			
CENTRIC DIATOM #1	CEL									X
CERATIUM HIRUNDINELLA	CEL					1.2	13			
CHLOROGONIUM	CEL									X
COCCONEIS PLACENTULA V. EUGLYPTA	CEL			X						
COSCINODISCUS ?	CEL			X						
COSMARIUM	CEL					2.5	27			
CRYPTOMONAS #2	CEL		1.5	20						
CYCLOTELLA	CEL					6.3	67			
CYCLOTELLA #1	CEL	3	8.3	112					2.2	31
CYCLOTELLA STELLIGERA	CEL						X			
DACTYLOCOCCOPSIS	CEL		5.3	71		2.5	27			X
DIATOMA VULGARE V. BREVE	CEL			X						
DICTYOSPHAERIUM PULCHELLUM	COL			X						
DINOBRYON	CEL					1.2	13			
DINOBRYON DIVERGENS	CEL		15.2	204						
DINOFLAGELLATE #1	CEL								1.1	16
DINOFLAGELLATE #2	CEL		1.5	20						
DINOFLAGELLATE #3	CEL						X			
EUCAPSIS	COL						X			
EUGLENA	CEL			X						X
EUGLENA #1	CEL					1.2	13			
FLAGELLATES	CEL	1	32.6	438	1	22.5	241	1	69.6	974
GOLENKINIA	CEL									X
KIRCHNERIELLA	CEL						X			
MELOSIRA #2	CEL	2	10.6	143	3	10.0	107	2	3.4	47
MELOSIRA #5	CEL		1.5	20						
MELOSIRA DISTANS	CEL	4	9.8	132			X	4	7.9	110

LAKE NAME: CHICKAMAUGA LAKE
STORET NUMBER: 4708

CONTINUED

TAXA	FORM	05 23 73 S	05 23 73 %C	05 23 73 ALGAL UNITS PER ML	08 23 73 S	08 23 73 %C	08 23 73 ALGAL UNITS PER ML	10 29 73 S	10 29 73 %C	10 29 73 ALGAL UNITS PER ML
MOUGEOTIA	FIL						X			
NAVICULA	CEL						X			
NAVICULA #1	CEL			X						X
NAVICULA #2	CEL		0.7	10						X
NAVICULA CRYPTOCEPHALA V. VENETA	CEL								1.1	16
NAVICULA VIRIDULA V. LINEARIS	CEL								1.1	16
NITZSCHIA	CEL		1.5	20	5	8.8	94			
OSCILLATORIA LIMNETICA	FIL			X		3.7	40			X
PENNATE DIATOM	CEL						X			
RAPHIDIOPSIS	FIL				2	18.8	201			
SCENEDESMUS	COL					1.2	13			
SCENEDESMUS #1	COL					2.5	27			
SCENEDESMUS DIMORPHUS	COL		0.7	10						X
SCENEDESMUS OPOLIENSIS	COL					1.2	13			
SCENEDESMUS QUADRICAUDA	COL			X					3.4	47
SKELETONEMA POTAMOS	CEL		0.7	10				3	4.5	63
SYNEDRA	CEL					2.5	27			
SYNEDRA ?	CEL	5	3.8	51	4	8.8	94			
SYNEDRA DELICATISSIMA	CEL			X					1.1	16
SYNEDRA FASCICULATA V. TRUNCATA ?	CEL								3.4	47
SYNEDRA RUMPENS	CEL		2.3	31						
SYNEDRA ULNA	CEL									X
SYNEDRA ULNA V. CONTRACTA	CEL							5	1.1	16
TABELLARIA	CEL			X			X			
TOTAL				1343			1071			1399

LAKE NAME: DOUGLAS LAKE
STORET NUMBER: 4711

NYGAARD TROPHIC STATE INDICES

DATE	05 25 73	08 23 73	10 27 73
MYXOPHYCEAN	0/01 O	3.00 E	05/0 E
CHLOROPHYCEAN	4.00 E	6.00 E	07/0 E
EUGLENOPHYTE	0.50 E	0.22 E	0.42 E
DIATOM	0.75 E	0.57 E	0.71 E
COMPOUND	12.0 E	15.0 E	22/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 25 73	08 23 73	10 27 73
GENUS	06	14	07
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 25 73	08 23 73	10 27 73
AVERAGE DIVERSITY	H	2.46	1.56	3.11
NUMBER OF TAXA	S	26.00	28.00	32.00
NUMBER OF SAMPLES COMPOSITED	M	6.00	6.00	5.00
MAXIMUM DIVERSITY	MAXH	4.70	4.81	5.00
TOTAL DIVERSITY	D	3070.08	10500.36	7473.33
TOTAL NUMBER OF INDIVIDUALS/ML	N	1248.00	6731.00	2403.00
EVENESS COMPONENT	J	0.52	0.32	0.62
MEAN NUMBER OF INDIVIDUALS/TAXA	L	48.00	240.39	75.09
NUMBER/ML OF MOST ABUNDANT TAXON	K	708.00	4913.00	724.00

LAKE NAME: DOUGLAS LAKE
STORET NUMBER: 4711

CONTINUED

TAXA	FORM	05 25 73 S	05 25 73 %C	05 25 73 ALGAL UNITS PER ML	08 23 73 S	08 23 73 %C	08 23 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA ?	CEL					1.1	72		1.4	33
ANABAENA	FIL						X			
ANKISTRODESMUS	CEL		0.8	10						
ASTERIONELLA FORMOSA	CEL	4	5.8	73						
CENTRIC DIATOM	CEL			X						
CERATIUM HIRUNDINELLA	CEL			X			X			X
CLOSTERIUM	CEL			X						
COELASTRUM	COL						X			
COELASTRUM SPHAERICUM	COL			X						X
CYCLOTELLA MENEGHINIANA	CEL									X
CYCLOTELLA STELLIGERA	CEL								4.1	99
DACTYLOCOCCOPSIS	CEL					0.3	18			X
DIATOMA	CEL									X
DINOFLAGELLATE	CEL		1.7	21						
EUGLENA	CEL			X			X			X
EUGLENA #1	CEL								1.4	33
FLAGELLATES	CEL	1	56.7	708	4	9.6	648	1	30.1	724
LYNGBYA	FIL								1.4	33
MELOSIRA #2	CEL	2	7.5	94			X	2	16.4	395
MELOSIRA #3	CEL			X						
MELOSIRA #5	CEL						X			
MELOSIRA DISTANS	CEL			X			X	4	6.8	164
MELOSIRA VARIANS	CEL			X						
MESOSTIGMA	CEL						X			
MICROCYSTIS AERUGINOSA	COL									X
NAVICULA #1	CEL		0.8	10			X			X
NAVICULA #2	CEL									X
NAVICULA #3	CEL						X			
NAVICULA SALINARIUM V. INTERMEDIA	CEL			X						
NITZSCHIA #1	CEL						X		1.4	33
NITZSCHIA #2	CEL		5.0	62			X	3	16.4	395

LAKE NAME: DOUGLAS LAKE
STORET NUMBER: 4711

CONTINUED

TAXA	FORM	05 25 73 S	05 25 73 %C	05 25 73 ALGAL UNITS PER ML	08 23 73 S	08 23 73 %C	08 23 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
NITZSCHIA #3	CEL				1	73.0	4913			
NITZSCHIA ACICULARIS	CEL			X						
OSCILLATORIA	FIL				3	5.1	342		1.4	33
PANDORINA MORUM	COL		1.7	21			X			X
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM	COL									X
PEDIASTRUM DUPLEX V. CLATHRATUM	COL						X			
PEDIASTRUM DUPLEX V. RETICULATUM	COL		0.8	10						
PERIDINIUM QUADRIDENS ?	CEL						X			
PHACUS ACUMINATUS	CEL									X
PHORMIDIUM MUCICOLA	COL									X
PLEODORINA CALIFORNICA	COL	3	4.2	52						
SCENEDESMUS #1	CEL									X
SCENEDESMUS #2	COL				5	1.9	126		1.4	33
SCENEDESMUS #3	COL		1.7	21		0.3	18			
SCENEDESMUS DENTICULATUS	COL									X
SCENEDESMUS DIMORPHUS	COL					0.5	36			
SCENEDESMUS QUADRICAUDA	COL									X
STAURASTRUM	CEL						X			
STEPHANODISCUS	CEL	5	7.5	94		1.6	108	5	6.8	164
SYNEDRA #1	CEL		2.5	31					4.1	99
SYNEDRA #2	CEL			X	2	5.1	342			
SYNEDRA ULNA	CEL		2.5	31						
TETRAEDRON MINIMUM	CEL								1.4	33
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL					1.1	72			
TRACHELOMONAS	CEL					0.5	36			
TRACHELOMONAS #1	CEL		0.8	10					5.5	132
TRACHELOMONAS #2	CEL									X
TOTAL				1248			6731			2403

LAKE NAME: FORT LOUDON LAKE
STORET NUMBER: 4712

NYGAARD TROPHIC STATE INDICES

DATE	05 24 73	08 24 73	10 27 73
MYXOPHYCEAN	02/0 E	1.50 E	2.50 E
CHLOROPHYCEAN	04/0 E	2.50 E	2.00 E
EUGLENOPHYTE	0.17 ?	0.12 ?	0.44 E
DIATOM	0.50 E	0.33 E	0.37 E
COMPOUND	16/0 E	6.50 E	9.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 24 73	08 24 73	10 27 73
GENUS	06	11	04
SPECIES	07	05	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 24 73	08 24 73	10 27 73
AVERAGE DIVERSITY	H	2.66	2.63	2.43
NUMBER OF TAXA	S	36.00	29.00	40.00
NUMBER OF SAMPLES COMPOSITED	M	7.00	7.00	7.00
MAXIMUM DIVERSITY	MAXH	5.17	4.86	5.32
TOTAL DIVERSITY	D	14941.22	9594.24	7139.34
TOTAL NUMBER OF INDIVIDUALS/ML	N	5617.00	3648.00	2938.00
EVENESS COMPONENT	J	0.51	0.54	0.46
MEAN NUMBER OF INDIVIDUALS/TAXA	L	156.03	125.79	73.45
NUMBER/ML OF MOST ABUNDANT TAXON	K	1382.00	1356.00	1755.00

LAKE NAME: FORT LOUDON LAKE CONTINUED
STORET NUMBER: 4712

TAXA	FORM	05 24 73 S	05 24 73 %C	05 24 73 ALGAL UNITS PER ML	08 24 73 S	08 24 73 %C	08 24 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
ACTINASTRUM HANTZSCHII	COL					1.4	52			
ASTERIONELLA	CEL			X						
CENTRIC DIATOM	CEL	4	21.8	1223					1.3	39
CERATIUM HIRUNDINELLA	CEL						X			X
CHLOROGONIUM	CEL									X
CLOSTERIUM	CEL									X
COCCONEIS	CEL			X						
COCCONEIS PEDICULUS	CEL		0.3	18						
COCCONEIS PLACENTULA V. EUGLYPTA	CEL					0.7	26		2.0	58
COSCINODISCUS	CEL			X						
COSMARIUM	CEL					1.4	52			
CYCLOTELLA	CEL					3.6	130	5	3.3	97
CYCLOTELLA STELLIGERA	CEL			X						
CYMBELLA	CEL								0.6	19
CYMBELLA TURGIDA ?	CEL			X						
CYMBELLA VENTRICOSA	CEL		0.3	18						
DACTYLOCOCCOPSIS	CEL		1.6	89					4.0	117
DIATOMA VULGARE	CEL						X			
EUGLENA	CEL								0.6	19
EUGLENA #2	CEL									X
FLAGELLATES	CEL	3	18.0	1010	3	12.1	443	1	59.7	1755
FRAGILARIA CROTONENSIS	CEL									X
GOMPHONEMA #1	CEL			X			X			X
GOMPHONEMA #2	CEL			X						X
GYROSIGMA	CEL						X			X
GYROSIGMA ?	CEL		0.3	18						
HANTZSCHIA	CEL			X						
LAGERHEIMIA	CEL								0.6	19
MELOSIRA	CEL			X						
MELOSIRA #2	CEL							3	6.0	175
MELOSIRA DISTANS	CEL	1	24.6	1382	5	2.9	104	4	6.0	175

LAKE NAME: FORT LOUDON LAKE
STORET NUMBER: 4712

CONTINUED

TAXA	FORM	05 24 73 S	05 24 73 %C	05 24 73 ALGAL UNITS PER ML	08 24 73 S	08 24 73 %C	08 24 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
MELOSIRA VARIANS	CEL		1.9	106			X			X
MERISMOPEDIA PUNCTATA	COL									X
MERISMOPEDIA TENUISSIMA	COL					0.7	26			
MESOSTIGMA	CEL			X						
NAVICULA #1	CEL						X			
NAVICULA #2	CEL									X
NAVICULA CRYPTOCEPHALA V. VENETA	CEL			X						X
NAVICULA LATEROPUNCTATA	CEL						X			
NAVICULA MOBILIENSIS	CEL						X			
NAVICULA MURALIS ?	CEL			X						
NAVICULA MUTICA V. TROPICA	CEL						X			X
NAVICULA TRIPUNCTATA V. SCHIZONEMOIDES	CEL			X			X			X
NAVICULA VIRIDULA V. LINEARIS ?	CEL									X
NAVICULA ZANONI ?	CEL			X			X			X
NITZSCHIA PALEA ?	CEL		0.9	53		2.1	78			X
OSCILLATORIA	FIL									X
OSCILLATORIA ANGUSTA	FIL						X		0.6	19
OSCILLATORIA LIMNETICA	FIL		0.6	35						
PEDIASTRUM TETRAS V. TETRAODON	COL									X
PENNATE DIATOM	CEL	5	5.4	301					1.3	39
PHACUS	CEL					0.7	26		0.6	19
RAPHIDIOPSIS	FIL								0.6	19
RAPHIDIOPSIS ?	FIL				2	37.2	1356			
SCENEDESMUS #1	COL		0.3	18		1.4	52			
SCENEDESMUS #2	COL					0.7	26			
SCENEDESMUS DIMORPHUS	COL			X						
SCENEDESMUS QUADRICAUDA	COL			X		0.7	26		0.6	19

LAKE NAME: FORT LOUDON LAKE
STORET NUMBER: 4712

CONTINUED

TAXA	FORM	05 24 73 S	05 24 73 %C	05 24 73 ALGAL UNITS PER ML	08 24 73 S	08 24 73 %C	08 24 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
SKELETONEMA POTAMOS	CEL	2	22.4	1258	4	3.6	130		2.7	78
STAURASTRUM	CEL						X			X
STEPHANODISCUS	CEL			X						
STEPHANODISCUS DUBIUS	CEL			X						
SURIRELLA ANGUSTATA	CEL			X						
SYNEDRA #1	CEL		0.9	53	1	29.3	1069		1.3	39
SYNEDRA ULNA	CEL		0.6	35					0.6	19
TETRAEDRON MINIMUM	CEL			X		1.4	52			
TETRAEDRON MINIMUM V. ?	CEL									X
TRACHELOMONAS	CEL			X				2	7.3	214
TOTAL				5617			3648			2938

LAKE NAME: GREAT FALLS LAKE
STORET NUMBER: 4713

NYGAARD TROPHIC STATE INDICES

DATE	05 31 73	08 17 73	10 24 73
MYXOPHYCEAN	01/0 E	2.00 E	2.00 E
CHLOROPHYCEAN	01/0 E	3.50 E	3.00 E
EUGLENOPHYTE	0/02 ?	0.09 ?	0.60 E
DIATOM	1.00 E	0.50 E	1.00 E
COMPOUND	03/0 E	8.00 E	12.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 31 73	08 17 73	10 24 73
GENUS	00	09	05
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 31 73	08 17 73	10 24 73
AVERAGE DIVERSITY	H	1.14	3.07	2.48
NUMBER OF TAXA	S	7.00	29.00	24.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	2.81	4.86	4.58
TOTAL DIVERSITY	D	177.84	9329.73	10696.24
TOTAL NUMBER OF INDIVIDUALS/ML	N	156.00	3039.00	4313.00
EVENESS COMPONENT	J	0.41	0.63	0.54
MEAN NUMBER OF INDIVIDUALS/TAXA	L	22.29	104.79	179.71
NUMBER/ML OF MOST ABUNDANT TAXON	K	112.00	925.00	1653.00

LAKE NAME: GREAT FALLS LAKE
STORET NUMBER: 4713

CONTINUED

TAXA	FORM	05 31 73 S	05 31 73 %C	05 31 73 ALGAL UNITS PER ML	08 17 73 S	08 17 73 %C	08 17 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA ?	CEL				5	12.3	375		0.5	20
ANABAENA	FIL					0.7	22			
ANKISTRODESMUS	CEL			X		0.7	22			
APHANIZOMENON	FIL						X			
ASTERIONELLA FORMOSA	CEL						X			
CENTRIC DIATOM	CEL									X
CERATIUM HIRUNDINELLA	CEL					0.7	22			
CERATIUM HIRUNDINELLA F. ?	CEL								0.5	20
COELASTRUM SPHAERICUM	COL						X			
CYCLOTELLA MENEGHINIANA	CEL									X
CYCLOTELLA STELLIGERA	CEL				3	10.1	308			
DACTYLOCOCCOPSIS	CEL							4	10.3	444
DINOBRYON	CEL									X
DINOBRYON BAVARICUM	CEL								1.9	81
DINOBRYON DIVERGENS	CEL							3	7.0	302
DINOFLAGELLATE	CEL		14.1	22		0.7	22			
DINOFLAGELLATE #1	CEL			X						X
EUGLENA	CEL									X
FLAGELLATES	CEL		71.8	112	2	21.8	661	1	38.3	1653
FRANCEIA	CEL					0.7	22			
GOLENKINIA	CEL					0.7	22			
LYNGBYA	FIL					2.2	66			
MELOSIRA #5	CEL					2.2	66			
MELOSIRA DISTANS	CEL									X
MELOSIRA DISTANS ?	CEL						X			
MERISMOPEDIA	COL								0.5	20
NAVICULA #1	CEL						X			
NAVICULA #2	CEL						X			X
NITZSCHIA	CEL						X		1.4	60
OSCILLATORIA ANGUSTA	FIL					3.6	110			
PANDORINA MORUM	COL								0.5	20

LAKE NAME: GREAT FALLS LAKE
STORET NUMBER: 4713

CONTINUED

TAXA	FORM	05 31 73 S	05 31 73 %C	05 31 73 ALGAL UNITS PER ML	08 17 73 S	08 17 73 %C	08 17 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
PENNATE DIATOM	CEL						X			
PHACUS	CEL									X
RAPHIDIOPSIS	FIL			X						
SCENEDESMUS	COL								0.5	20
SCENEDESMUS BIJUGA	COL									X
SCENEDESMUS DENTICULATUS	COL						X			
SCENEDESMUS DISPAR	COL						X			
STAURASTRUM #1	CEL					1.4	44			
STAURASTRUM #2	CEL					0.7	22		0.9	40
STEPHANODISCUS	CEL		14.1	22		5.1	154	5	5.1	222
SYNEDRA	CEL			X						
SYNEDRA #1	CEL				1	30.4	925			
SYNEDRA DELICATISSIMA	CEL				4	4.3	132			
SYNEDRA DELICATISSIMA ?	CEL								1.9	81
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL					1.4	44	2	29.9	1290
TRACHELOMONAS	CEL						X			
TRACHELOMONAS #1	CEL								0.9	40
TOTAL				156			3039			4313

LAKE NAME: NICKAJACK RES.
STORET NUMBER: 4717

NYGAARD TROPHIC STATE INDICES

DATE	05 23 73	08 18 73	10 30 73
MYXOPHYCEAN	3.00 E	03/0 E	01/0 E
CHLOROPHYCEAN	4.00 E	03/0 E	02/0 E
EUGLENOPHYTE	0.14 ?	0.17 ?	0.33 E
DIATOM	0.50 E	1.00 E	0.75 E
COMPOUND	15.0 E	13/0 E	07/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 23 73	08 18 73	10 30 73
GENUS	02	02	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 23 73	08 18 73	10 30 73
AVERAGE DIVERSITY	H	2.79	2.61	1.31
NUMBER OF TAXA	S	33.00	22.00	12.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	5.04	4.46	3.58
TOTAL DIVERSITY	D	5231.25	6057.81	738.84
TOTAL NUMBER OF INDIVIDUALS/ML	N	1875.00	2321.00	564.00
EVENESS COMPONENT	J	0.55	0.59	0.37
MEAN NUMBER OF INDIVIDUALS/TAXA	L	56.82	105.50	47.00
NUMBER/ML OF MOST ABUNDANT TAXON	K	606.00	1303.00	409.00

LAKE NAME: NICKAJACK RES.
STORET NUMBER: 4717

CONTINUED

TAXA	FORM	05 23 73 S	05 23 73 %C	05 23 73 ALGAL UNITS PER ML	08 18 73 S	08 18 73 %C	08 18 73 ALGAL UNITS PER ML	10 30 73 S	10 30 73 %C	10 30 73 ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA V. APICULATA	CEL									X
ANABAENA	FIL		0.6	11						
ASTERIONELLA FORMOSA	CEL		1.2	22						
CENTRIC DIATOM	CEL							4	5.0	28
CENTRIC DIATOM #2	CEL					1.4	32			
CLOSTERIUM	CEL		0.6	11						
COCCONEIS	CEL			X						
COSCINODISCUS	CEL		2.3	43						
CRUCIGENIA APICULATA	COL						X			
CRYPTOMONAS #2	CEL				5	4.1	95			
CYCLOTELLA	CEL	4	6.3	119		6.2	143			
CYCLOTELLA STELLIGERA	CEL			X						
CYMBELLA	CEL			X			X			
DACTYLOCOCCOPSIS	CEL		4.6	87						
DINOFLAGELLATE	CEL		1.7	32		1.4	32			
EUGLENA	CEL						X			X
FLAGELLATES	CEL	2	32.3	606	1	56.1	1303	1	72.5	409
FRAGILARIA CROTONENSIS	CEL				4	6.2	143			
HANTZSCHIA	CEL			X						
MELOSIRA #2	CEL	1	24.3	455	2	4.8	111			X
MELOSIRA #5	CEL					1.4	32			
MELOSIRA DISTANS	CEL	3	17.9	336		2.1	48			X
MELOSIRA VARIANS	CEL			X						
MERISMOPEDIA TENUISSIMA	COL					0.7	16			
NAVICULA #1	CEL			X						
NAVICULA #2	CEL			X						
NAVICULA #3	CEL			X				5	2.5	14
NAVICULA #4	CEL			X						
NITZSCHIA	CEL					0.7	16			
NITZSCHIA ?	CEL		0.6	11						
OSCILLATORIA	FIL			X						

LAKE NAME: NICKAJACK RES.
STORET NUMBER: 4717

CONTINUED

TAXA	FORM	05 23 73 S	05 23 73 %C	05 23 73 ALGAL UNITS PER ML	08 18 73 S	08 18 73 %C	08 18 73 ALGAL UNITS PER ML	10 30 73 S	10 30 73 %C	10 30 73 ALGAL UNITS PER ML
OSCILLATORIA LIMNETICA	FIL					1.4	32	3	5.0	28
PANDORINA MORUM	COL		0.6	11						
PENNATE DIATOM	CEL		1.2	22				2	15.1	85
PENNATE DIATOM #2	CEL					0.7	16			
RAPHIDIOPSIS	FIL					3.4	79			
SCENEDESMUS BIJUGA	COL			X						X
SCENEDESMUS DIMORPHUS	COL					0.7	16			
SCENEDESMUS OPOLIENSIS	COL		0.6	11						
SCENEDESMUS QUADRICAUDA	COL			X		1.4	32			X
SKELETONEMA POTAMOS	CEL	5	4.1	76	3	5.5	127			
SURIRELLA	CEL			X						
SURIRELLA ANGUSTATA	CEL			X						
SYNEDRA	CEL			X						
SYNEDRA ? #1	CEL		0.6	11						
SYNEDRA #1	CEL					2.1	48			X
SYNEDRA DELICATISSIMA	CEL						X			
TETRASTRUM ? GLABRUM	COL		0.6	11						
TRACHELOMONAS	CEL			X						
TOTAL				1875			2321			564

LAKE NAME: OLD HICKORY LAKE
STORET NUMBER: 4720

NYGAARD TROPHIC STATE INDICES

DATE	05 22 73	08 16 73	10 22 73
MYXOPHYCEAN	01/0 E	4.50 E	10.0 E
CHLOROPHYCEAN	01/0 E	5.00 E	14.0 E
EUGLENOPHYTE	1.00 E	0.05 ?	0.17 ?
DIATOM	0.64 E	0.86 E	0.80 E
COMPOUND	11/0 E	13.0 E	36.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 22 73	08 16 73	10 22 73
GENUS	02	16	13
SPECIES	00	01	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 22 73	08 16 73	10 22 73
AVERAGE DIVERSITY	H	2.72	3.10	3.00
NUMBER OF TAXA	S	25.00	39.00	54.00
NUMBER OF SAMPLES COMPOSITED	M	5.00	5.00	3.00
MAXIMUM DIVERSITY	MAXH	4.64	5.29	5.75
TOTAL DIVERSITY	D	4180.64	33582.30	23742.00
TOTAL NUMBER OF INDIVIDUALS/ML	N	1537.00	10833.00	7914.00
EVENESS COMPONENT	J	0.59	0.59	0.52
MEAN NUMBER OF INDIVIDUALS/TAXA	L	61.48	277.77	146.56
NUMBER/ML OF MOST ABUNDANT TAXON	K	452.00	3299.00	2909.00

LAKE NAME: OLD HICKORY LAKE
STORET NUMBER: 4720

CONTINUED

TAXA	FORM	05 22 73 S	05 22 73 %C	05 22 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 22 73 S	10 22 73 %C	10 22 73 ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA	CEL						X			X
ACHNANTHES LANCEOLATA V. DUBIA	CEL			X						
ANABAENA	FIL						X			
ANABAENA #1	FIL									X
ANABAENA #2	FIL									X
ANABAENOPSIS	FIL					0.6	65		0.3	23
ANOMOEONEIS VITREA	CEL									X
ASTERIONELLA	CEL						X			
ASTERIONELLA FORMOSA	CEL		0.8	12						
CERATIUM HIRUNDINELLA	CEL									X
CERATIUM HIRUNDINELLA F. AUSTRIACUM ?	CEL						X			
CLOSTERIUM	CEL									X
CLOSTERIUM ?	CEL						X			
COCCONEIS PLACENTULA V. EUGLYPTA	CEL			X						
COELASTRUM SPHAERICUM	COL									X
COLONY	COL						X			
COSMARIUM	CEL						X			
CRYPTOMONAS	CEL							4	4.6	364
CYANOPHYTAN FILAMENT	FIL					0.3	32			
CYANOPHYTAN FILAMENT #2	FIL									X
CYCLOTELLA	CEL	4	8.7	134					3.2	250
CYCLOTELLA STELLIGERA	CEL				5	3.9	420		2.3	182
CYMBELLA	CEL									X
DACTYLOCOCCOPSIS	CEL		1.6	24		1.5	162		4.0	318
DICTYOSPHAERIUM PULCHELLUM	COL									X
DINOBRYON SERTULARIA	CEL									X
DINOFLAGELLATE	CEL		2.4	37					0.3	23
EUGLENA	CEL		1.6	24					0.3	23
FLAGELLATES	CEL	2	25.4	391	3	14.0	1520	3	18.4	1455

LAKE NAME: OLD HICKORY LAKE CONTINUED
STORET NUMBER: 4720

TAXA	FORM	05 22 73 S	05 22 73 %C	05 22 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 22 73 S	10 22 73 %C	10 22 73 ALGAL UNITS PER ML
FRAGILARIA #1	CEL			X						
FRAGILARIA #2	CEL									X
FRAGILARIA CROTONENSIS	CEL			X						X
FRANCEIA	CEL								0.3	23
GOLENKINIA	CEL						X			
LYNGBYA	FIL						X			
MELOSIRA	CEL	1	29.4	452						
MELOSIRA #2	CEL			X		0.9	97	1	16.9	1341
MELOSIRA #3	CEL								1.1	91
MELOSIRA #5	CEL									X
MELOSIRA DISTANS	CEL			X	1	30.5	3299	2	36.8	2909
MELOSIRA VARIANS	CEL			X			X			X
MERISMOPEDIA MINIMA	COL					1.8	194			X
MESOSTIGMA	CEL						X			
MICROCYSTIS AERUGINOSA	COL								0.3	23
NAVICULA CAPITATA	CEL						X			X
NAVICULA DECUSSIS	CEL									X
NITZSCHIA	CEL		1.6	24						
NITZSCHIA #3	CEL			X						
NITZSCHIA #4	CEL		1.6	24						
NITZSCHIA ACICULARIS ?	CEL					0.9	97		0.3	23
NITZSCHIA HOLSATICA	CEL									X
NITZSCHIA HOLSATICA ?	CEL					0.3	32			
OPHIOCYTIUM CAPITATUM ?	CEL									X
OSCILLATORIA GEMINATA ?	FIL					2.7	291		0.3	23
OSCILLATORIA LIMNETICA	FIL					2.7	291		1.1	91
PANDORINA MORUM	COL			X						X
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM	COL								0.3	23
PEDIASTRUM DUPLEX V. CLATHRATUM	COL								0.3	23
PEDIASTRUM SIMPLEX	COL					0.6	65			

LAKE NAME: OLD HICKORY LAKE
STORET NUMBER: 4720

CONTINUED

TAXA	FORM	05 22 73 S	05 22 73 %C	05 22 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 22 73 S	10 22 73 %C	10 22 73 ALGAL UNITS PER ML
PEDIASTRUM TETRAS V. TETRAODON	COL									X
PENNATE DIATOM	CEL			X						
PHACUS	CEL									X
PHORMIDIUM MUCICOLA	COL								0.3	23
RAPHIDIOPSIS ?	FIL					5.4	582			
SCENEDESMUS #1	COL								0.3	23
SCENEDESMUS #2	COL								0.3	23
SCENEDESMUS #3	COL						X			
SCENEDESMUS #4	COL						X			
SCENEDESMUS #5	COL						X			
SCENEDESMUS #6	COL						X			
SCENEDESMUS DIMORPHUS	COL					0.9	97		0.3	23
SCENEDESMUS QUADRICAUDA	COL		0.8	12			X		2.0	159
SCHROEDERIA SETIGERA	CEL					1.2	129			
SKELETONEMA POTAMOS	CEL	3	18.3	281	2	19.1	2070	5	3.4	273
STEPHANODISCUS	CEL	5	7.2	110	4	11.6	1261			
SYNEDRA #1	CEL			X		0.9	97			
SYNEDRA DELICATISSIMA	CEL			X					0.9	68
SYNEDRA DELICATISSIMA ?	CEL						X			
TETRAEDRON	CEL								0.3	23
TETRAEDRON MINIMUM	CEL									X
TETRASTRUM HETERACANTHUM	COL									X
TRACHELOMONAS	CEL					0.3	32			X
TRACHELOMONAS #1	CEL		0.8	12					0.9	68
TREUBARIA	CEL						X		0.3	23
TOTAL				1537			10833			7914

LAKE NAME: WATTS BAR LAKE
STORET NUMBER: 4722

NYGAARD TROPHIC STATE INDICES

DATE	05 25 73	08 24 73	10 24 73
MYXOPHYCEAN	02/0 E	06/0 E	1.00 E
CHLOROPHYCEAN	02/0 E	08/0 E	4.50 E
EUGLENOPHYTE	0.50 E	0.07 ?	0.27 E
DIATOM	0.50 E	0.62 E	0.56 E
COMPOUND	12/0 E	20/0 E	9.50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 25 73	08 24 73	10 24 73
GENUS	03	13	05
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 25 73	08 24 73	10 24 73
AVERAGE DIVERSITY	H	2.68	2.72	2.94
NUMBER OF TAXA	S	29.00	34.00	34.00
NUMBER OF SAMPLES COMPOSITED	M	8.00	8.00	8.00
MAXIMUM DIVERSITY	MAXH	4.86	5.09	5.09
TOTAL DIVERSITY	D	13662.64	12775.84	5586.00
TOTAL NUMBER OF INDIVIDUALS/ML	N	5098.00	4697.00	1900.00
EVENESS COMPONENT	J	0.55	0.53	0.58
MEAN NUMBER OF INDIVIDUALS/TAXA	L	175.79	138.15	55.88
NUMBER/ML OF MOST ABUNDANT TAXON	K	1518.00	2107.00	919.00

LAKE NAME: WATTS BAR LAKE
STORET NUMBER: 4722

CONTINUED

TAXA	FORM	05 25 73 S	05 25 73 %C	05 25 73 ALGAL UNITS PER ML	08 24 73 S	08 24 73 %C	08 24 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA ?	CEL									X
AMPHORA	CEL									X
ANABAENA	FIL			X						
ANKISTRODESMUS FALCATUS	CEL						X			
ANOMOEONEIS	CEL			X						
ASTERIONELLA FORMOSA	CEL		1.3	67						
CENTRIC DIATOM	CEL								3.5	66
CERATIUM HIRUNDINELLA	CEL					0.5	22			
CERATIUM HIRUNDINELLA F. ?	CEL									X
COSCINODISCUS	CEL		0.6	33						
COSMARIUM	CEL									X
CRUCIGENIA	COL									X
CYCLOTELLA	CEL					3.7	176			
CYCLOTELLA STELLIGERA	CEL		0.9	45						
CYMBELLA	CEL		0.2	11						
DACTYLOCOCCOPSIS	CEL					1.9	88		2.6	49
DICTYOSPHAERIUM PULCHELLUM	COL									X
DINOBRYON DIVERGENS	CEL						X			
DINOBRYON SOCIALE ?	CEL		0.6	33						
DINOFLAGELLATE #1	CEL					0.9	44			
DINOFLAGELLATE #2	CEL		0.2	11					1.7	33
EUASTRUM	CEL								0.8	16
EUGLENA	CEL		0.2	11						X
FLAGELLATES	CEL	2	22.3	1138	1	44.9	2107	1	48.4	919
FRAGILARIA ?	CEL			X						
FRAGILARIA CROTONENSIS	CEL			X			X			
GOMPHONEMA	CEL						X			
GYROSIGMA	CEL						X			
HANTZSCHIA	CEL			X						
LYNGBYA	FIL					0.5	22			
MELOSIRA #2	CEL	3	17.9	915	5	2.8	132	2	7.8	148

LAKE NAME: WATTS BAR LAKE
STORET NUMBER: 4722

CONTINUED

TAXA	FORM	05 25 73 S	05 25 73 %C	05 25 73 ALGAL UNITS PER ML	08 24 73 S	08 24 73 %C	08 24 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
MELOSIRA DISTANS	CEL	1	29.8	1518		6.5	307	3	11.2	213
MERISMOPEDIA TENUISSIMA	COL						X			
MICROCYSTIS AERUGINOSA	COL					0.5	22			
MICROCYSTIS INCERTA	COL									X
NAVICULA #1	CEL									X
NAVICULA #2	CEL			X						
NAVICULA PUPULA V. RECTANGULARIS	CEL			X						
NAVICULA VIRIDULA	CEL									X
NITZSCHIA	CEL		0.4	22		0.5	22			
NITZSCHIA HOLSATICA ?	CEL						X			X
OSCILLATORIA	FIL		0.2	11						
OSCILLATORIA ANGUSTA	FIL					1.4	66			
PANDORINA MORUM	COL		0.2	11			X			
PEDIASTRUM SIMPLEX	COL						X			
PENNATE DIATOM	CEL								1.7	33
PERIDINIUM QUADRIDENS	CEL								0.8	16
PERIDINIUM QUADRIDENS ?	CEL		0.2	11			X			
PHACUS	CEL								0.8	16
RAPHIDIOPSIS	FIL				2	21.0	987			
SCENEDESMUS #1	COL		0.4	22		0.9	44		2.6	49
SCENEDESMUS #2	COL					0.5	22			
SCENEDESMUS #3	COL		0.2	11		0.5	22			
SCENEDESMUS ABUNDANS ?	COL								0.8	16
SCENEDESMUS BIJUGA	COL								0.8	16
SCENEDESMUS DIMORPHUS	COL						X			X
SCENEDESMUS OPOLIENSIS	COL								1.7	33
SCENEDESMUS QUADRICAUDA	COL								0.8	16
SKELETONEMA POTAMOS	CEL	4	17.3	882	3	5.6	263	5	3.5	66
STEPHANODISCUS	CEL	5	3.9	201		0.9	44	4	5.2	98
SURIRELLA	CEL			X						
SYNEDRA ? #1	CEL				4	5.1	241			

LAKE NAME: WATTS BAR LAKE CONTINUED
STORET NUMBER: 4722

TAXA	FORM	05 25 73 S	05 25 73 %C	05 25 73 ALGAL UNITS PER ML	08 24 73 S	08 24 73 %C	08 24 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
SYNEDRA #1	CEL		2.0	100					0.8	16
SYNEDRA DELICATISSIMA	CEL			X			X		0.8	16
SYNEDRA ULNA										
V. OXYRHYNCHUS F. MEDIOCONTRACTA	CEL						X			
TABELLARIA	CEL									X
TETRAEDRON MINIMUM										
V. SCROBICULATUM	CEL					0.9	44		0.8	16
TETRAEDRON MUTICUM	CEL					0.5	22			
TRACHELOMONAS	CEL		0.9	45			X		2.6	49
TOTAL				5098			4697			1900

LAKE NAME: PERCY PRIEST RES.
STORET NUMBER: 4723

NYGAARD TROPHIC STATE INDICES

DATE	05 21 73	08 16 73	10 24 73
MYXOPHYCEAN	3.50 E	09/0 E	4.50 E
CHLOROPHYCEAN	6.50 E	10/0 E	7.00 E
EUGLENOPHYTE	0.10 ?	0.32 E	0.22 E
DIATOM	0.36 E	0.50 E	0.80 E
COMPOUND	13.0 E	28/0 E	16.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 21 73	08 16 73	10 24 73
GENUS	13	08	24
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 21 73	08 16 73	10 24 73
AVERAGE DIVERSITY	H	2.27	3.29	3.13
NUMBER OF TAXA	S	45.00	37.00	45.00
NUMBER OF SAMPLES COMPOSITED	M	5.00	5.00	5.00
MAXIMUM DIVERSITY	MAXH	5.49	5.21	5.49
TOTAL DIVERSITY	D	15131.82	7988.12	28082.36
TOTAL NUMBER OF INDIVIDUALS/ML	N	6666.00	2428.00	8972.00
EVENESS COMPONENT	J	0.41	0.63	0.57
MEAN NUMBER OF INDIVIDUALS/TAXA	L	148.13	65.62	199.38
NUMBER/ML OF MOST ABUNDANT TAXON	K	2603.00	771.00	2708.00

LAKE NAME: PERCY PRIEST RES.
STORET NUMBER: 4723

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA V. DUBIA	CEL									X
ACHNANTHES MICROCEPHALA ?	CEL				3	15.0	363			
ACTINASTRUM HANTZSCHII	COL		0.5	30						
ANABAENA #1	FIL		0.2	10		0.9	23			X
ANABAENA #2	FIL		0.2	10						
ANABAENOPSIS	FIL					0.9	23		0.3	25
ANKISTRODESMUS	CEL		0.3	20					0.3	25
APHANIZOMENON ? FLOS-AQUAE	FIL			X						
ASTERIONELLA FORMOSA	CEL	4	3.0	200						
CERATIUM HIRUNDINELLA	CEL			X						X
CERATIUM HIRUNDINELLA F. ?	CEL						X			
CHLOROGONIUM	CEL			X						
CLOSTERIUM #1	CEL			X						
CLOSTERIUM #2	CEL			X						
COCCONEIS PLACENTULA V. EUGLYPTA	CEL			X						
COELASTRUM	COL						X			
COELASTRUM CAMBRICUM V. INTERMEDIUM	COL						X			X
COELASTRUM SPHAERICUM	COL			X						
COSMARIUM	CEL									X
CRUCIGENIA APICULATA	COL									X
CRUCIGENIA TETRAPEDIA	COL						X			
CYCLOTELLA STELLIGERA	CEL								1.7	150
DACTYLOCOCCOPSIS	CEL		0.2	10		0.9	23	4	30.2	2708
DIATOMA	CEL			X						
DICTYOSPHAERIUM PULCHELLUM	COL		0.3	20						
DINOFLAGELLATE	CEL		0.2	10					0.6	50
DINOFLAGELLATE #1	CEL			X						X
EUASTRUM	CEL									X

LAKE NAME: PERCY PRIEST RES.
STORET NUMBER: 4723

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
EUGLENA #1	CEL		0.2	10		1.9	45		0.3	25
EUGLENA #2	CEL						X		0.3	25
FLAGELLATES	CEL	2	29.9	1992	2	31.8	771	1	23.5	2106
GOMPHONEMA	CEL		0.2	10						
LAGERHEIMIA	CEL								0.6	50
LYNGBYA #1	FIL				4	10.3	249			
LYNGBYA #2	FIL									X
MELOSIRA #2	CEL	1	39.0	2603		2.8	68		3.9	351
MELOSIRA DISTANS	CEL		0.8	50			X	2	9.8	877
MELOSIRA VARIANS	CEL			X						
MERISMOPEDIA PUNCTATA	COL								0.8	75
MERISMOPEDIA TENUISSIMA	COL					0.9	23		0.8	75
MICROCYSTIS INCERTA	COL			X					0.6	50
NAVICULA #1	CEL			X						
NAVICULA #2	CEL			X						
NAVICULA VIRIDULA	CEL						X			
NITZSCHIA #1	CEL	5	1.8	120		1.9	45		2.2	201
NITZSCHIA #2	CEL			X						
NITZSCHIA #3	CEL						X			
NITZSCHIA ACICULARIS	CEL						X		0.3	25
OOCYSTIS	CEL		0.3	20						
OSCILLATORIA ? #1	FIL					4.7	113			
OSCILLATORIA #2	FIL			X			X			
OSCILLATORIA #3	FIL				1	3.7	91			
OSCILLATORIA LIMNETICA	FIL		1.8	120				5	5.6	501
PANDORINA MORUM	COL		0.2	10						X
PEDIASTRUM BIRADIATUM	COL									X
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM	COL									X
PEDIASTRUM DUPLEX	COL			X						
PEDIASTRUM DUPLEX V. ?	COL									X

LAKE NAME: PERCY PRIEST RES.
STORET NUMBER: 4723

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 16 73 S	08 16 73 %C	08 16 73 ALGAL UNITS PER ML	10 24 73 S	10 24 73 %C	10 24 73 ALGAL UNITS PER ML
PEDIASTRUM SIMPLEX	COL			X						X
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL						X			
PERIDINIUM QUADRIDENS	CEL						X		0.3	25
PHACUS	CEL					2.8	68			
PHACUS ACUMINATUS ?	CEL						X		0.6	50
PHACUS LONGICAUDA	CEL									X
PHACUS PYRUM	CEL			X			X			
RAPHIDIOPSIS ?	FIL					8.4	204			X
SCENEDESMUS #1	COL		0.2	10					0.3	25
SCENEDESMUS #2	COL					0.9	23		0.3	25
SCENEDESMUS #3	COL						X			
SCENEDESMUS #4	COL									X
SCENEDESMUS ARCUATUS	COL		0.2	10						
SCENEDESMUS DENTICULATUS	COL					0.9	23			
SCENEDESMUS DIMORPHUS	COL			X						X
SCENEDESMUS QUADRICAUDA	COL		0.5	30			X			X
SPHAEROCYSTIS SCHROETERI	COL		0.2	10						
STEPHANODISCUS	CEL	3	19.7	1311	5	9.3	227	3	8.9	802
SYNEDRA ? #1	CEL						X		5.9	526
SYNEDRA #1	CEL		0.6	40						
SYNEDRA #2	CEL			X						
SYNEDRA #3	CEL								0.3	25
SYNEDRA ULNA	CEL			X						
TETRAEDRON MINIMUM	CEL					0.9	23		2.0	175
TETRAEDRON TRIGONUM	CEL		0.2	10						
TRACHELOMONAS	CEL					0.9	23			X
TREUBARIA	CEL						X			
TOTAL				6666			2428			8972

LAKE NAME: TIMS FORD RES.
STORET NUMBER: 4724

NYGAARD TROPHIC STATE INDICES

DATE	05 21 73	08 15 73	10 23 73
MYXOPHYCEAN	03/0 E	4.00 E	5.00 E
CHLOROPHYCEAN	01/0 E	5.00 E	5.00 E
EUGLENOPHYTE	0.25 E	0.11 ?	0.20 ?
DIATOM	0.83 E	1.00 E	1.20 E
COMPOUND	10/0 E	11.5 E	18.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 21 73	08 15 73	10 23 73
GENUS	09	06	05
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 21 73	08 15 73	10 23 73
AVERAGE DIVERSITY	H	2.47	3.44	2.79
NUMBER OF TAXA	S	18.00	32.00	27.00
NUMBER OF SAMPLES COMPOSITED	M	6.00	6.00	6.00
MAXIMUM DIVERSITY	MAXH	4.17	5.00	4.75
TOTAL DIVERSITY	D	11616.41	6966.00	7256.79
TOTAL NUMBER OF INDIVIDUALS/ML	N	4703.00	2025.00	2601.00
EVENESS COMPONENT	J	0.59	0.69	0.59
MEAN NUMBER OF INDIVIDUALS/TAXA	L	261.28	63.28	96.33
NUMBER/ML OF MOST ABUNDANT TAXON	K	1854.00	489.00	1343.00

LAKE NAME: TIMS FORD RES.
STORET NUMBER: 4724

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 15 73 S	08 15 73 %C	08 15 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA V. DUBIA	CEL		0.2	11						
ACHNANTHES MICROCEPHALA ?	CEL				1	24.1	489	4	4.8	124
ACTINASTRUM HANTZSCHII	COL					0.8	16			
ANABAENA #1	FIL		0.2	11	5	4.0	81			
ANABAENA #2	FIL					0.4	8			
ANABAENA #3	FIL					4.4	90			
APHANOCAPSA ?	COL									X
ASTERIONELLA FORMOSA	CEL	3	12.7	597						
CENTRIC DIATOM #1	CEL									X
CENTRIC DIATOM #2	CEL			X						
CERATIUM HIRUNDINELLA	CEL			X			X			
CHROOCOCCUS	COL		0.2	11					0.5	14
COELASTRUM RETICULATUM	COL					0.8	16			
COSMARIUM #1	CEL					0.8	16			
CYCLOTELLA	CEL		1.4	64		4.0	81			
CYCLOTELLA STELLIGERA	CEL								4.3	111
DACTYLOCOCCOPSIS	CEL								2.1	55
DINOBRYON	CEL								1.6	41
DINOFLAGELLATE	CEL					1.6	33		0.5	14
EUGLENA	CEL					0.4	8		0.5	14
FLAGELLATES	CEL	1	39.4	1854	2	20.5	415	1	51.6	1343
FRAGILARIA CONSTRUENS	CEL						X			
FRAGILARIA CROTONENSIS	CEL		3.4	160						
GOLENKINIA	CEL						X			
LAGERHEIMIA	CEL					0.4	8			
LYNGBYA SUBTILIS	FIL				4	9.2	187			
LYNGBYA SUBTILIS ?	FIL								3.7	97
MELOSIRA #2	CEL	2	21.5	1013		0.8	16	2	6.4	166
MELOSIRA DISTANS	CEL	4	15.2	715		0.4	8		2.1	55
MICROCYSTIS INCERTA	COL						X			
NITZSCHIA ? #2	CEL							3	9.0	235

LAKE NAME: TIMS FORD RES.
STORET NUMBER: 4724

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 15 73 S	08 15 73 %C	08 15 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
NITZSCHIA #1	CEL		0.4	21					2.1	55
OSCILLATORIA	FIL						X			
OSCILLATORIA LIMNETICA	FIL		1.4	64		5.2	106			
PANDORINA MORUM	COL					0.4	8			
PEDIASTRUM SIMPLEX	COL						X			
PENNATE DIATOM #1	CEL									X
PHACUS	CEL								1.1	28
RAPHIDIOPSIS ?	FIL					6.0	122	5	4.8	124
RHIZOSOLENIA	CEL								0.5	14
SCENEDESMUS #1	COL					0.8	16		0.5	14
SCENEDESMUS #2	COL					0.4	8			X
SCENEDESMUS #3	COL						X			
SCENEDESMUS DIMORPHUS	COL		0.2	11						
STAURASTRUM TETRACERUM	CEL					0.8	16		0.5	14
STEPHANODISCUS	CEL		0.4	21						X
SYNEDRA ? #1	CEL					2.0	41			
SYNEDRA #1	CEL		1.6	75						
SYNEDRA DELICATISSIMA	CEL	5	1.6	75						X
TETRAEDRON MINIMUM	CEL				3	11.3	228		2.7	69
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL									X
TRACHELOMONAS	CEL			X		0.4	8			
TREUBARIA	CEL						X			
TREUBARIA TRIAPPENDICULATA	CEL								0.5	14
TOTAL				4703			2025			2601

LAKE NAME: SOUTH HOLSTON LAKE
STORET NUMBER: 4725

NYGAARD TROPHIC STATE INDICES

DATE	05 23 73	08 20 73	10 27 73
MYXOPHYCEAN	1.00 E	2.00 E	03/0 E
CHLOROPHYCEAN	1.00 E	2.50 E	03/0 E
EUGLENOPHYTE	0/02 ?	0/09 ?	0.33 E
DIATOM	0.75 E	0.62 E	1.00 E
COMPOUND	5.00 E	7.00 E	14/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 23 73	08 20 73	10 27 73
GENUS	01	11	04
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 23 73	08 20 73	10 27 73
AVERAGE DIVERSITY	H	1.68	1.68	3.18
NUMBER OF TAXA	S	12.00	30.00	25.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	3.58	4.91	4.64
TOTAL DIVERSITY	D	17094.00	20212.08	8302.98
TOTAL NUMBER OF INDIVIDUALS/ML	N	10175.00	12031.00	2611.00
EVENESS COMPONENT	J	0.47	0.34	0.69
MEAN NUMBER OF INDIVIDUALS/TAXA	L	847.92	401.03	104.44
NUMBER/ML OF MOST ABUNDANT TAXON	K	6167.00	8474.00	772.00

LAKE NAME: SOUTH HOLSTON LAKE CONTINUED
STORET NUMBER: 4725

TAXA	FORM	05 23 73 S	05 23 73 %C	05 23 73 ALGAL UNITS PER ML	08 20 73 S	08 20 73 %C	08 20 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA ?	CEL				5	2.5	303			X
AMPHORA	CEL						X			
CENTRIC DIATOM	CEL					0.3	38			
CERATIUM HIRUNDINELLA F. ?	CEL					0.6	76			
CERATIUM HIRUNDINELLA F. BRACHYCERAS ?	CEL						X			
CLOSTERIUM	CEL						X			
COELASTRUM RETICULATUM	COL						X			
COELASTRUM SPHAERICUM	COL									X
COSMARIUM #1	CEL		0.2	18						
COSMARIUM #2	CEL						X			
CRUCIGENIA	COL								3.5	91
CRYPTOMONAS	CEL							3	11.3	295
CYANOPHYTAN COLONY	COL					1.9	227			
CYCLOTELLA STELLIGERA	CEL						X		5.2	136
DACTYLOCOCCOPSIS	CEL		0.4	36						
DIATOMA ?	CEL						X			
DINOBRYON	CEL		0.2	18						
DINOFLAGELLATE #1	CEL						X			
DINOFLAGELLATE #2	CEL						X			
DINOFLAGELLATE #3	CEL					0.3	38			X
DINOFLAGELLATE #4	CEL									X
FLAGELLATES	CEL	3	60.6	6167	3	6.6	794	1	29.6	772
FRAGILARIA #2	CEL	5	1.9	196						
FRAGILARIA CROTONENSIS	CEL	2	12.6	1283						X
LUNATE CELL	CEL	1							0.9	23
MELOSIRA #2	CEL						X	2	11.3	295
MELOSIRA #5	CEL		0.4	36			X			X
MELOSIRA DISTANS	CEL	4	3.7	374					3.5	91
MICROCYSTIS INCERTA	COL									X
NAVICULA #1	CEL						X			X

LAKE NAME: SOUTH HOLSTON LAKE CONTINUED
STORET NUMBER: 4725

TAXA	FORM	05 23 73 S	05 23 73 %C	05 23 73 ALGAL UNITS PER ML	08 20 73 S	08 20 73 %C	08 20 73 ALGAL UNITS PER ML	10 27 73 S	10 27 73 %C	10 27 73 ALGAL UNITS PER ML
NITZSCHIA #1	CEL						X			X
NITZSCHIA #2	CEL						X			
OSCILLATORIA #1	FIL						X			X
OSCILLATORIA #2	FIL					0.6	76			
PENNATE DIATOMS	CEL		0.2	18						
PHACUS	CEL								0.9	23
RAPHIDIOPSIS	FIL				1	70.4	8474	4	12.2	318
SCENEDESMUS	COL		0.2	18		0.9	113			
SCENEDESMUS ACUMINATUS ?	COL						X			
STEPHANODISCUS	CEL					1.3	151		0.9	23
STEPHANODISCUS DUBIUS	CEL	1	19.8	2011					1.7	45
SYNEDRA ? #1	CEL			X					3.5	91
SYNEDRA #1	CEL				2	11.3	1362			
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL								1.7	45
TABELLARIA	CEL					0.6	76			
TETRAEDRON MINIMUM	CEL				4	2.5	303			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL						X	5	12.2	318
TRACHELOMONAS	CEL								1.7	45
TOTAL				10175			12031			2611

LAKE NAME: REELFOOT LAKE
STORET NUMBER: 4727

NYGAARD TROPHIC STATE INDICES

DATE	05 14 73	08 11 73	10 19 73
MYXOPHYCEAN	2.67 E	17.0 E	3.60 E
CHLOROPHYCEAN	3.00 E	14.0 E	4.40 E
EUGLENOPHYTE	0.29 E	0.13 ?	0.12 ?
DIATOM	1.20 E	3.00 E	3.00 E
COMPOUND	9.33 E	41.0 E	10.2 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 14 73	08 11 73	10 19 73
GENUS	21	08	24
SPECIES	05	02	07

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 14 73	08 11 73	10 19 73
AVERAGE DIVERSITY	H	3.32	3.82	4.24
NUMBER OF TAXA	S	40.00	46.00	61.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	5.32	5.52	5.93
TOTAL DIVERSITY	D	51606.08	207678.12	248103.60
TOTAL NUMBER OF INDIVIDUALS/ML	N	15544.00	54366.00	58515.00
EVENESS COMPONENT	J	0.62	0.69	0.72
MEAN NUMBER OF INDIVIDUALS/TAXA	L	388.60	1181.87	959.26
NUMBER/ML OF MOST ABUNDANT TAXON	K	3886.00	15533.00	12264.00

LAKE NAME: REELFOOT LAKE CONTINUED
STORET NUMBER: 4727

TAXA	FORM	05 14 73 S	05 14 73 %C	05 14 73 ALGAL UNITS PER ML	08 11 73 S	08 11 73 %C	08 11 73 ALGAL UNITS PER ML	10 19 73 S	10 19 73 %C	10 19 73 ALGAL UNITS PER ML
ANABAENA #1	FIL		3.3	515		0.6	333		3.9	2286
ANABAENA #2	FIL		0.3	47		1.6	888		0.5	312
ANABAENOPSIS ELENKINII	FIL					0.6	333			X
ANABAENOPSIS TANGANYIKAE	FIL					2.0	1109		2.3	1351
ANKISTRODESMUS	CEL		0.9	140					0.4	208
ANKISTRODESMUS ?	CEL					0.6	333			
APHANIZOMENON ?	FIL						X			
APHANOTHECE NIDULANS	COL					0.4	222		0.2	104
BOTRYOCOCCUS BRAUNII	COL									X
CERATIUM HIRUNDINELLA	CEL									X
CHLOROGONIUM	CEL						X		0.2	104
CHROOCOCCUS	COL								2.5	1455
CHROOCOCCUS #1	COL					3.3	1775			
CHROOCOCCUS #2	COL					1.4	777			
CLOSTERIUM	CEL									X
COELASTRUM	COL								0.5	312
COELOSPHAERIUM NAEGELIANUM	COL									X
COELOSPHAERIUM PULCHELLUM	COL			X						
COSMARIUM	CEL						X		0.5	312
CRUCIGENIA APICULATA	COL						X			
CRUCIGENIA TETRAPEDIA	COL					0.2	111			X
CYANOPHYTAN COCCOID CELLED COLONY	COL					4.3	2330		1.6	935
CYANOPHYTAN FILAMENT	FIL					2.4	1331			
CYANOPHYTAN FILAMENT #1	FIL								1.4	831
CYANOPHYTAN FILAMENT #2	FIL								2.8	1663
CYCLOTELLA MENEGHINIANA	CEL					0.4	222		0.5	312
CYCLOTELLA STELLIGERA	CEL		1.2	187						
DICTYOSPHAERIUM PULCHELLUM	COL			X		0.2	111		0.5	312
DINOBRYON DIVERGENS	CEL			X						
DINOFLAGELLATE	CEL			X						
EUGLENA #1	CEL		1.5	234					0.2	104
EUGLENA #2	CEL			X						X

LAKE NAME: REELFOOT LAKE
STORET NUMBER: 4727

CONTINUED

TAXA	FORM	05 14 73 S	05 14 73 %C	05 14 73 ALGAL UNITS PER ML	08 11 73 S	08 11 73 %C	08 11 73 ALGAL UNITS PER ML	10 19 73 S	10 19 73 %C	10 19 73 ALGAL UNITS PER ML
FLAGELLATES	CEL		25.0	3886		3.5	1886		5.0	2910
GYROSIGMA ?	CEL			X						
KIRCHNERIELLA OBESA	CEL									X
LYNGBYA CONTORTA	FIL								1.6	935
LYNGBYA CONTORTA ?	FIL					2.0	1109			
LYNGBYA LIMNETICA	FIL		0.3	47		2.0	1109		1.4	831
MELOSIRA #2	CEL	3	8.7	1358	2	11.4	6213	1	21.0	12264
MELOSIRA #3	CEL			X		1.0	555		2.5	1455
MELOSIRA #5	CEL		3.0	468		4.3	2330	5	5.7	3326
MELOSIRA DISTANS	CEL	1	16.3	2528	1	28.6	15533		6.2	3638
MERISMOPEDIA	COL					1.4	777			
MERISMOPEDIA MARSSONII	COL		0.6	94	3	8.6	4660	3	7.8	4573
MICROCYSTIS INCERTA	COL			X		2.4	1331	4	6.6	3845
NAVICULA	CEL		0.3	47			X			
NITZSCHIA #1	CEL	2	14.5	2247	4	5.7	3107	2	7.1	4158
NITZSCHIA ACICULARIS	CEL		0.9	140					0.4	208
OOCYSTIS	CEL									X
OSCILLATORIA #1	FIL	5	5.1	796						
OSCILLATORIA #2	FIL						X			
OSCILLATORIA #3	FIL									X
OSCILLATORIA #4	FIL			X						
OSCILLATORIA GEMINATA	FIL									X
OSCILLATORIA LIMNETICA	FIL								3.2	1871
PANDORINA MORUM	COL		0.3	47						
PEDIASTRUM BIRADIATUM V. LONGECORNUTUM	COL						X			X
PEDIASTRUM DUPLEX V. RETICULATUM	COL			X					0.2	104
PEDIASTRUM DUPLEX V. RETICULATUM ?	COL						X			
PEDIASTRUM SIMPLEX	COL						X			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL									X

LAKE NAME: REELFOOT LAKE
STORET NUMBER: 4727

CONTINUED

TAXA	FORM	05 14 73 S	05 14 73 %C	05 14 73 ALGAL UNITS PER ML	08 11 73 S	08 11 73 %C	08 11 73 ALGAL UNITS PER ML	10 19 73 S	10 19 73 %C	10 19 73 ALGAL UNITS PER ML
PEDIASTRUM TETRAS										
V. TETRAODON	COL		0.3	47						
PHACUS LONGICAUDA	CEL			X						X
PHACUS PYRUM	CEL						X		0.2	104
PHACUS TORTUS ?	CEL						X			
RAPHIDIOPSIS CURVATA	FIL					5.1	2774		3.6	2079
SCENEDESMUS	COL									X
SCENEDESMUS #1	COL						X			
SCENEDESMUS #2	COL						X			
SCENEDESMUS ABUNDANS	COL		0.9	140			X		0.4	208
SCENEDESMUS BERNARDII	COL								0.2	104
SCENEDESMUS BIJUGA	COL								0.2	104
SCENEDESMUS DIMORPHUS	COL								0.4	208
SCENEDESMUS DISPAR	COL									X
SCENEDESMUS QUADRICAUDA	COL		0.6	94					0.5	312
SCHROEDERIA SETIGERA	CEL			X		0.2	111			X
SELENASTRUM	COL		0.3	47			X			
STAURASTRUM #1	CEL		0.3	47						
STAURASTRUM #2	CEL		0.3	47						
STAURASTRUM #3	CEL			X						X
STAURASTRUM #4	CEL									X
STAURASTRUM #5	CEL									X
STEPHANODISCUS	CEL	4	12.6	1966	5	4.9	2663		6.7	3949
SYNEDRA	CEL			X						
TETRAEDRON MINIMUM	CEL								0.2	104
TETRAEDRON MUTICUM	CEL								0.7	416
TETRAEDRON PLANCTONICUM	CEL									X
TETRAEDRON TRIGONUM	CEL					0.2	111			
TETRAEDRON VICTORIAE	CEL			X						
TETRASTRUM STAUROGENIAEFORME	COL					0.2	111			
TRACHELOMONAS #1	CEL			X			X			
TRACHELOMONAS #2	CEL		2.4	375		0.2	111		0.2	104

LAKE NAME: REELFOOT LAKE
STORET NUMBER: 4727

CONTINUED

TAXA	FORM	05 14 73 S	05 14 73 %C	05 14 73 ALGAL UNITS PER ML	08 11 73 S	08 11 73 %C	08 11 73 ALGAL UNITS PER ML	10 19 73 S	10 19 73 %C	10 19 73 ALGAL UNITS PER ML
TREUBARIA	CEL								0.2	104
TOTAL				15544			54366			58515

LAKE NAME: WOODS RES.
STORET NUMBER: 4728

NYGAARD TROPHIC STATE INDICES

DATE	05 21 73	08 15 73	10 23 73
MYXOPHYCEAN	01/0 E	1.00 E	03/0 E
CHLOROPHYCEAN	01/0 E	2.67 E	04/0 E
EUGLENOPHYTE	0/02 ?	0.09 ?	0.29 E
DIATOM	0.60 E	0.50 E	0.75 E
COMPOUND	05/0 E	5.00 E	12/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	05 21 73	08 15 73	10 23 73
GENUS	00	07	06
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		05 21 73	08 15 73	10 23 73
AVERAGE DIVERSITY	H	1.57	2.45	1.32
NUMBER OF TAXA	S	13.00	27.00	20.00
NUMBER OF SAMPLES COMPOSITED	M	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	3.70	4.75	4.32
TOTAL DIVERSITY	D	1510.34	20878.90	1949.64
TOTAL NUMBER OF INDIVIDUALS/ML	N	962.00	8522.00	1477.00
EVENESS COMPONENT	J	0.42	0.52	0.31
MEAN NUMBER OF INDIVIDUALS/TAXA	L	74.00	315.63	73.85
NUMBER/ML OF MOST ABUNDANT TAXON	K	500.00	3384.00	1160.00

LAKE NAME: WOODS RES.
STORET NUMBER: 4728

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 15 73 S	08 15 73 %C	08 15 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA ?	CEL					3.8	321			X
ANKISTRODESMUS	CEL									X
ASTERIONELLA FORMOSA	CEL	1	52.0	500						
CENTRIC DIATOM	CEL		0.5	5						
CHROOCOCCUS #1	COL		0.5	5		0.3	25			
COCCONEIS	CEL					0.3	25			
COELASTRUM SPHAERICUM	COL			X			X			
COSMARIUM	CEL					0.3	25			
CYANOPHYTAN FILAMENT	FIL				4	4.1	346			
CYCLOTELLA	CEL								1.7	25
CYCLOTELLA STELLIGERA	CEL					1.4	123			
DINOBRYON BAVARICUM	CEL	4	1.6	15						
DINOBRYON DIVERGENS	CEL			X						
DINOBRYON SERTULARIA ?	CEL							5	2.6	38
DINOFLAGELLATE #2	CEL								1.7	25
EUGLENA	CEL						X			X
FLAGELLATES	CEL	2	38.8	373	2	23.8	2026	1	78.5	1160
FRAGILARIA CROTONENSIS	CEL	3	3.5	34						
GOMPHONEMA	CEL									X
LYNGBYA	FIL						X			
MALLOMONAS ?	CEL						X			
MELOSIRA #2	CEL	5	1.0	10			X			X
MELOSIRA #5	CEL							4	1.7	25
MELOSIRA DISTANS	CEL		1.0	10		0.6	49			
MICROCYSTIS INCERTA	COL									X
NAVICULA	CEL			X			X			
NITZSCHIA	CEL					0.6	49			
OSCILLATORIA GEMINATA	FIL									X
PEDIASTRUM SIMPLEX	COL						X			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL									X
PENNATE DIATOM	CEL		1.0	10						

LAKE NAME: WOODS RES.
STORET NUMBER: 4728

CONTINUED

TAXA	FORM	05 21 73 S	05 21 73 %C	05 21 73 ALGAL UNITS PER ML	08 15 73 S	08 15 73 %C	08 15 73 ALGAL UNITS PER ML	10 23 73 S	10 23 73 %C	10 23 73 ALGAL UNITS PER ML
PERIDINIUM QUADRIDENS	CEL					0.3	25			
PERIDINIUM QUADRIDENS ?	CEL									X
PHACUS	CEL									X
RAPHIDIOPSIS ?	FIL								0.9	13
SCENEDESMUS #1	COL					0.3	25			
SCENEDESMUS #2	COL					0.3	25			
SCENEDESMUS #3	COL						X			
SCENEDESMUS BIJUGA ?	COL				1	39.7	3384	2	6.9	102
SELENASTRUM	COL						X			
STAURASTRUM	CEL						X			
STAURASTRUM TETRACERUM	CEL						X			
SURIRELLA	CEL			X						
SYNEDRA #1	CEL				3	17.4	1482	3	5.1	76
SYNEDRA #2	CEL					0.9	74			
SYNEDRA DELICATISSIMA	CEL									X
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL				5	6.1	518		0.9	13
TOTAL				962			8522			1477